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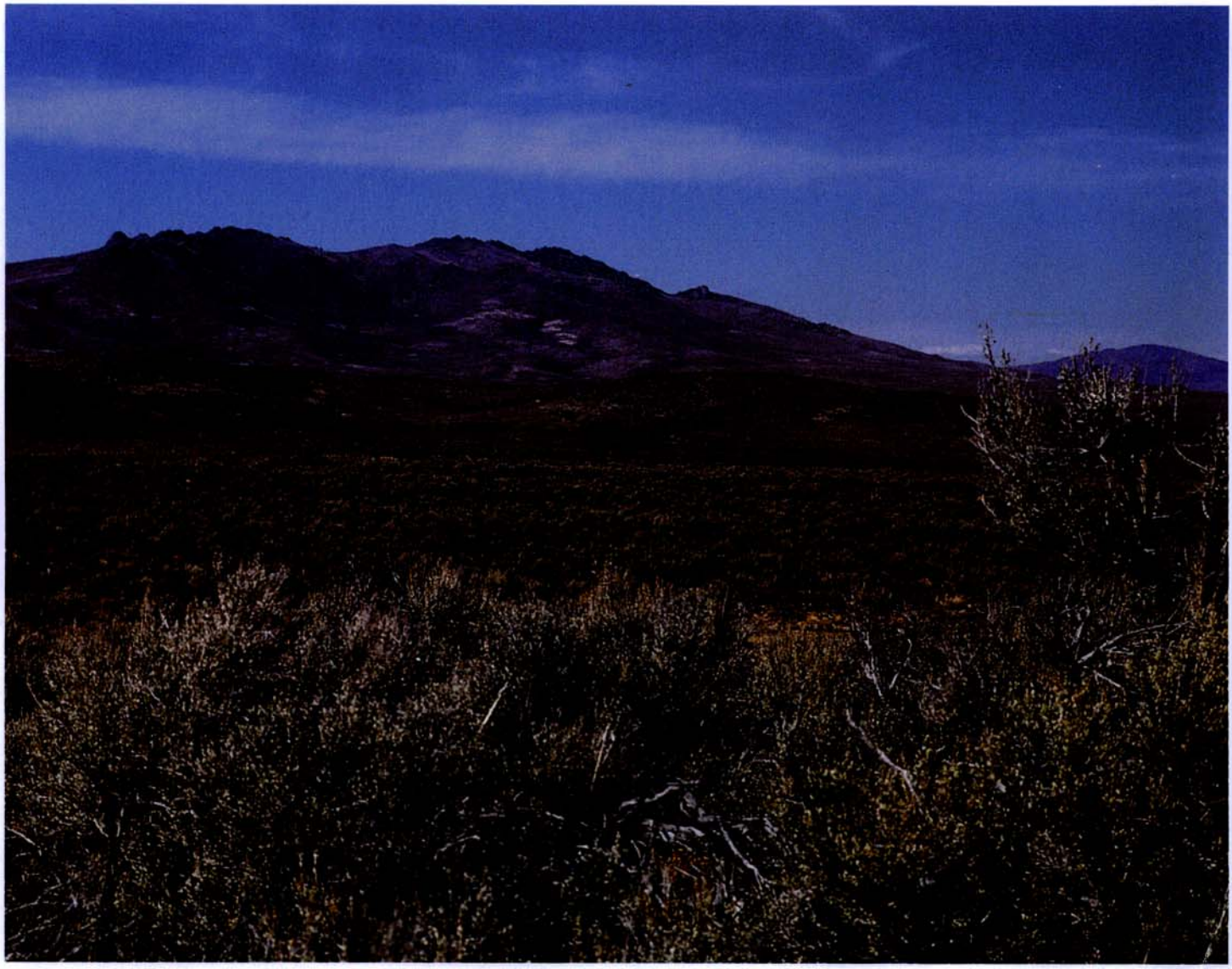
Natural Resources Conservation Service

In cooperation with United States Department of the Interior, Bureau of Land Management, and University of Nevada, Agricultural Experiment Station

Soil Survey of Elko County, Nevada, Central Part

Volume 1



How To Use This Soil Survey

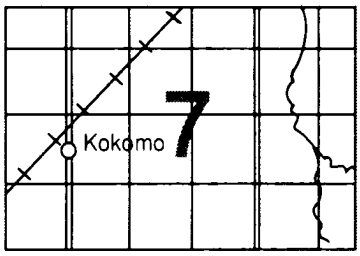
General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

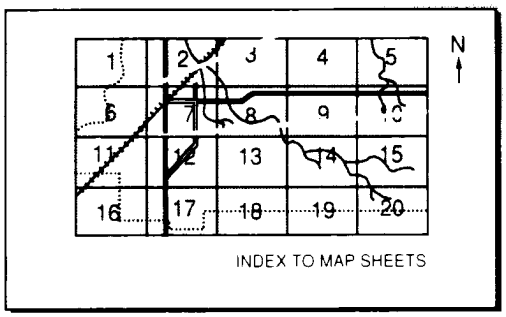
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.



MAP SHEET

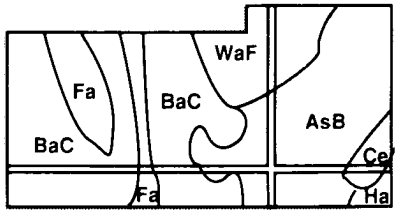
To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.

MAP SHEET



AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1984. Soil names and descriptions were approved in 1986. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1984. This survey was made cooperatively by the Natural Resources Conservation Service; the United States Department of the Interior, Bureau of Land Management; and the University of Nevada, Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Jiggs, Lamoille, Northeast Elko, Owyhee, and Starr Valley Conservation Districts.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: Lone Mountain, southwest aspect. Stampede soils are in the foreground, and Donna and Stampede soils are in the middle of the picture. These soils are on fan piedmont remnants.

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Foreword

This soil survey contains information that can be used in land-planning programs in the survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the suitability of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William D. Goddard
State Conservationist
Natural Resources Conservation Service

Soil Survey of Elko County, Nevada, Central Part

By Paul W. Blackburn, Natural Resources Conservation Service
United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
United States Department of the Interior, Bureau of Land Management, and University of Nevada, Agricultural Experiment Station

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This survey area is in the northeastern part of Nevada (fig. 1). It comprises most of the southwestern and central parts of Elko County. It has a total area of 2,623,895 acres, or nearly 4,100 square miles. The incorporated town of Elko is in the central part of the survey area.

The survey area is at the northern fringe of the Basin and Range province. Its position is transitional to the Snake River Plains along the Idaho State line.

The survey area is made up of mountain ranges trending north-south and intermontane valleys. Tributaries of the Humboldt River drain the survey area. The northern part of the survey area is a transitional area to high volcanic plateaus. The survey area rises in elevation from about 5,000 feet in the valleys to about 8,700 feet in the Pinyon Range.

The survey area is sparsely populated. Its economy is based on ranching and mining. Scattered irrigated lands are throughout the area, mostly on the flood plains along the Humboldt River and its tributaries. Native meadow, used as either hayland or pasture, makes up much of the irrigated land.

The descriptions, names, and boundaries of the soils in this survey area do not in all instances match those on the soil maps of adjacent survey areas. Differences are the result of a better knowledge of the soils, changes in series concepts, or variations in the intensity of mapping or in the extent of the soils within the survey areas.

General Nature of the Survey Area

This section gives general information about the survey area. It describes history, water supply, industries and transportation, drainage, soil landscapes, geology, and climate.

History

The original inhabitants of the survey area were the Shoshone Indians. French trappers and fur traders arrived in 1828. A wagon trail established in 1843 along the Humboldt River was utilized for 27 years. Ranching began in 1859, after cattle had wintered on the flood plain along the Humboldt River.

In 1868, the Central Pacific Railroad Company laid tracks along the Humboldt River. In December of that year, the town of Elko was planned. A month later, the first lots were put up for sale. In 1869, mines were started in the northern part of the survey area and the Idaho-Elko Toll Road was opened.

Because of its location, the town of Elko became the main trade center for the area. It is still the hub for the area's trade, transportation, and recreational activities.

Water Supply

The main sources of water in the survey area are the Humboldt River and its tributaries. Some of its tributaries are the North and South Forks of the

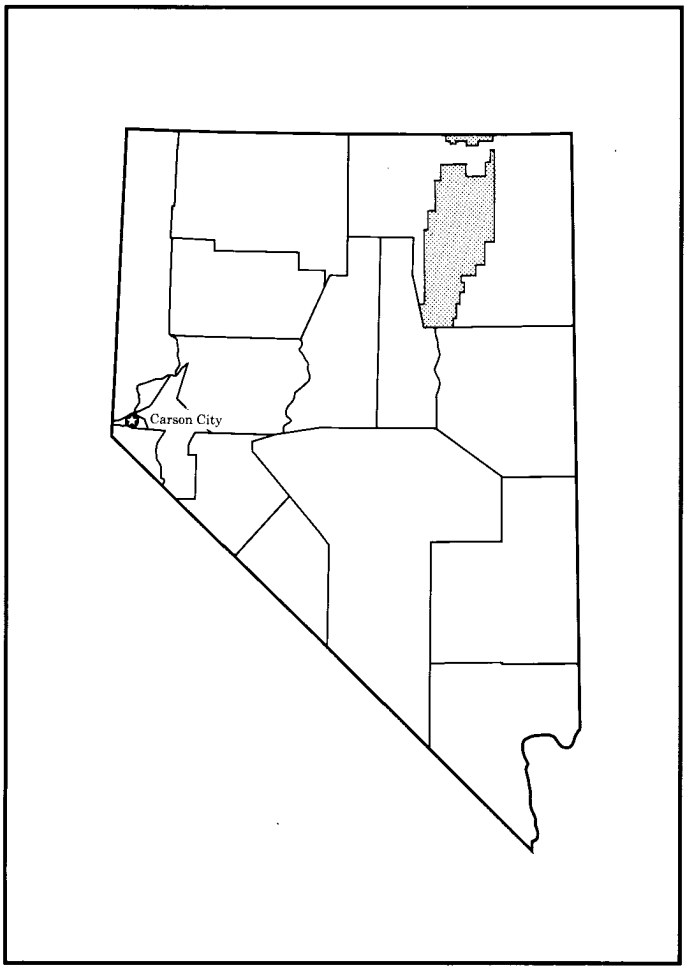

Figure 1.—Location of Elko County, Central Part, in Nevada.

Humboldt River, Huntington Creek, and the Marys River. The water is used mainly for irrigation. In a few scattered areas, water for irrigation is drawn from drilled wells or springs.

At the lower elevations, water for livestock and wildlife is provided by the Humboldt River and its tributaries. At the higher elevations, water is provided by numerous small springs and seeps and several small perennial streams.

Domestic wells are the main source of water for the town of Elko and the outlying rural areas. Springs provide water for some of the communities and ranches near the foot of mountain ranges.

Industries and Transportation

The main industries in the survey area are ranching and mining. The ranches are dominantly cow-calf operations. The weaners and yearlings are generally sold in the fall. A few herds of sheep are in the area.

An open pit gold mine north of Elko began operating in 1980. After a mill was completed in 1981, the mine became the second largest gold producer in the United States. Exploration for oil has taken place southwest of Jiggs and north of Ryndon. Geothermal ground water has been developed and is used by local small industries.

Rail service to the area is provided by the Southern Pacific and Union Pacific Railroads. Amtrak and a commercial airline provide service to and from the town of Elko on a daily basis. Chartered flight service is available at the Elko Municipal Airport.

Interstate 80 runs from east to southwest through the south-central part of the survey area. State Route 225, which is the main paved road, runs north-south from the town of Elko through Mountain City. Route 226, a paved road south of Elko, runs through Jiggs, where it becomes an unpaved county road. State Route 229 leaves I-80 at Halleck and runs southeast through Ruby and Secret Valley. A scenic loop can be taken on Route 230 by exiting I-80 at Deeth and heading southeast through Starr Valley and returning to I-80 at Welcome.

Drainage

The survey area is drained principally by the Humboldt River. This river enters the survey area east of Deeth and flows in a southwesterly direction through Elko, leaving the survey area near Carlin.

The southern part of the survey area is drained mainly by Huntington Creek. This creek enters the South Fork of the Humboldt River north of Jiggs.

The central part of the survey area is drained by two major tributaries of the Humboldt River. The west-central part is drained by the North Fork of the Humboldt River, which flows dominantly south and enters the Humboldt River directly east of Ryndon. The east-central part is drained by the Marys River, which flows south and enters the Humboldt River near Deeth.

The northwestern and northeastern parts of the survey area, which are near Idaho, each have major drainages. The Bruneau River drains the northwestern part. It flows north into Idaho and enters the Snake River. The Jarbidge River drains the northeastern part. It flows north into Idaho and enters the North Fork of the Bruneau River.

Soil Landscapes

In this survey area the mapped areas generally represent associations of two or three major soil components as well as included soils of limited extent.

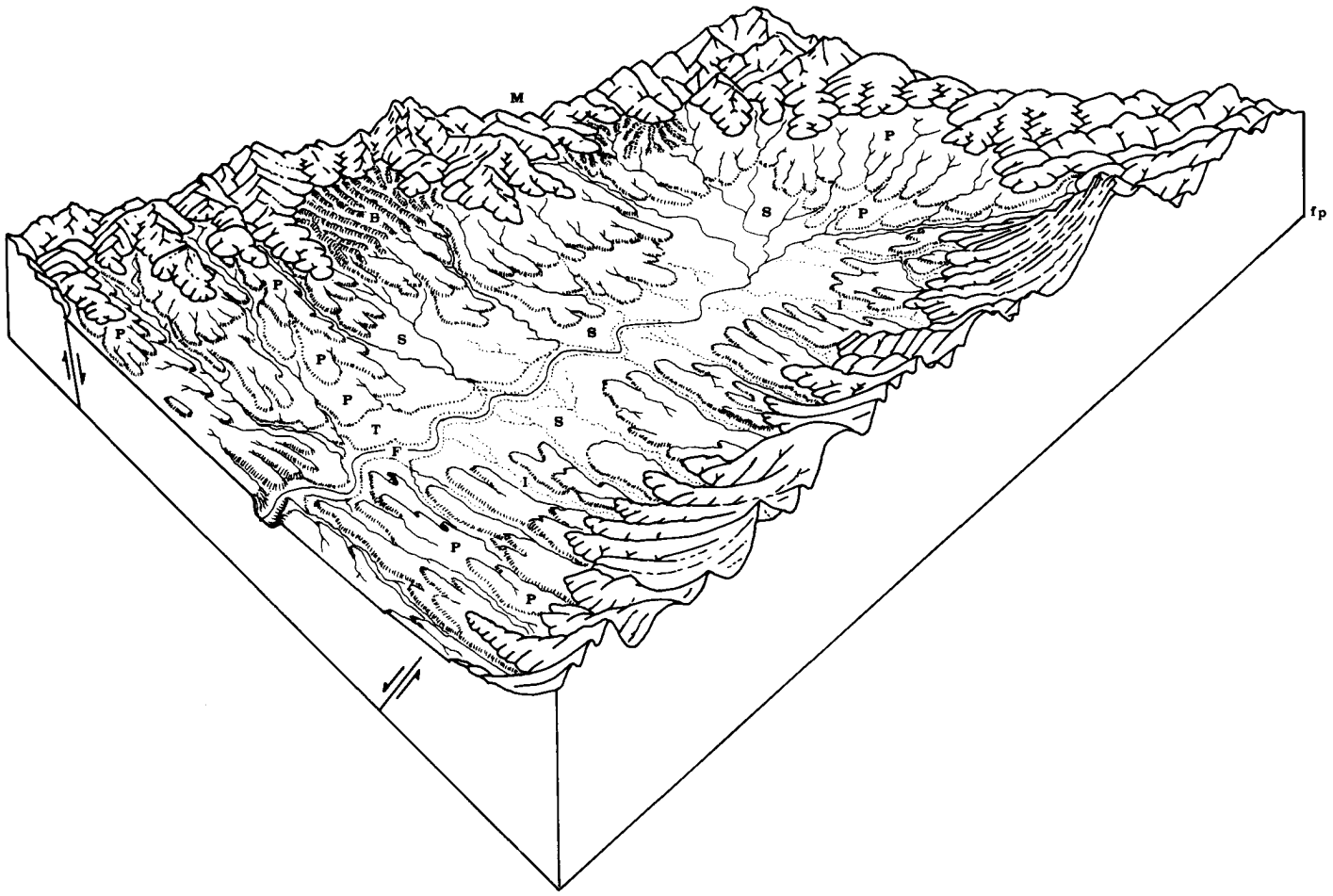

Figure 2.—A semibolson that displays the effects of several cycles of dissection and deposition. The major landforms are ballenas (B); fan piedmonts (P), comprising several levels, or ages, of fan remnants; fan skirts (S); an axial stream terrace (T); and an axial stream flood plain (F). Alluvial fans are not distinguished from fan piedmonts. Inset fans (I) are between fan remnants. The basin is bounded on two sides by mountains (M).

Soil patterns commonly coincide with landforms and physiographic positions. In the section "Detailed Soil Map Units," descriptive terms are used to identify the location of individual soil components on the landscape. Although landforms and soils are related, they are not mutually exclusive. Individual soil series commonly occur on more than one component landform.

In this survey area the landforms are classified and defined according to a system developed by Frederick F Peterson *(16)*. The landform elements are described and defined in a manner precise enough to indicate where soils occur in relation to each other. The intent of this section is not to define all of the landform terms but to define briefly the main geomorphic surfaces in the survey area. All landform terms are defined in the Glossary.

The landforms of the intermontane basins are first grouped in two general classes—bolson and semibolson (fig. 2). Bolsons are not described in this report because they do not occur within the survey area. Semibolsons have three identifiable major physiographic parts in the Basin and Range province (fig. 3). These are the bounding mountains, the piedmont slope, and the basin floor. The bounding mountains rise more than 1,000 feet above the surrounding boundaries. The piedmont slope and basin floor are gross topographic forms that slope from the bounding mountains down to a flood plain.

The shapes, genetic relationships, and geographic scales of the topography observed in the field are used to classify the landforms. The semibolson landform is successively divided into smaller and genetically more

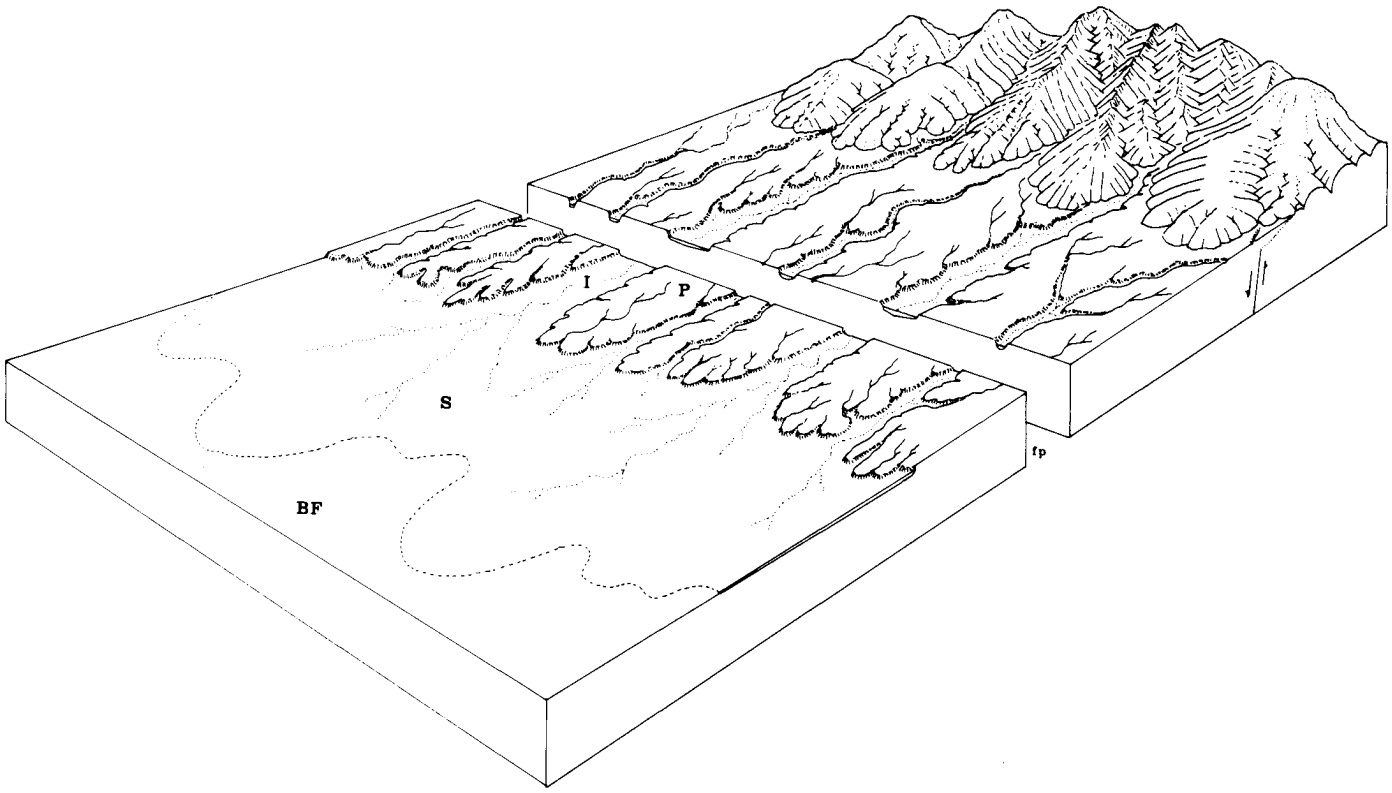

Figure 3.—A fan skirt (S) that merges along its lower boundary with a basin floor (BF) and that was formed by coalescing alluvial fans originating at gullies cut in a dissected fan piedmont (P) and by debauching inset fans (I) of the fan piedmont. The erosional fan piedmont remnants and mouths of the inset fans form the upper boundary of the fan skirt. The skirt is the same age surface as the inset fans but is younger than the relict summits of the fan remnants. It may be the same age or younger than the basin floor surface, but as shown here it is younger because its alluvium overlaps the basin floor surface.

homogeneous classes, as shown in the chart "Classification of Semibolson Landforms." The broadest class is major physiographic parts, each of which is made up of several genetically related major landforms. These landforms in turn may be comprised of several genetically related component landforms. The component landforms are the smallest single units that one would consider in combined terms of their form, constituent materials, and genetic history. Some component landforms, such as fan piedmont remnants, have distinctive topographic parts with quite different geomorphic histories. These parts are called landform elements. The landform elements that are erosional surfaces are subdivided into slope components.

In the section "General Soil Map Units," landscape positions are given for each major component. These positions generally are major physiographic parts, major landforms, or component landforms. In the section "Detailed Soil Map Units," broad landscape positions are specified for each map unit. These positions apply to the entire unit. They are major physiographic parts or major landforms. More detailed landscape positions are given for each major component and contrasting inclusion in the map unit. These generally are component landforms, landform elements, or slope components.

Geology

Lower Paleozoic Ordovician rocks are the oldest rocks in the survey area *(8)*. These rocks formed in material laid down in a broad, shallow sea, part of a wide strait extending eastward into central Utah. The rocks are in areas south of Taylor Canyon, in the north end of the Adobe Range, and in the Double Mountain area. They include the Valmy Formation and the Vinini Formation.

Mid-Paleozoic rocks of dominantly Devonian age

CLASSIFICATION OF SEMIBOLSON LANDFORMS

Landforms			Parts of landforms	
I Major physiographic part	II Major landform	III Component landform	IV Landform element	V Slope component
Bounding mountains				
Piedmont slope	Ballena			Crest Shoulder slope Back slope Foot slope
		Inset fan	Channel Channel	
	Alluvial fan	Fan collar Erosional fan remnant	Channel Summit Side slope	Shoulder slope Back slope Foot slope
	Fan piedmont	Erosional fan remnant	Summit Side slope Partial ballena	Shoulder slope Back slope Foot slope Crest Shoulder slope Back slope Foot slope
		Inset fan Fan apron	Channel Channel Channel	
	Fan skirt		Channel	
Basin floor (semibolson floor)	Alluvial flat	Alluvial flat Alluvial flat remnant	Channel Channel	
	Alluvial plain	Basin floor remnant Sand dune		
	Axial stream flood plain	Flood plain Stream terrace	Channel	

underlie the Pinyon Range, the Adobe Range, and the Elko hills *(8)*. These rocks consist of shale, siltstone, sandstone, and chert pebble conglomerate. Typically, Sumine, Cleavage, Chen, Hapgood, and Loncan soils overlie these rocks.

Local areas of Devonian dolomite and limestone are throughout the survey area, but they are mainly in the Pinyon Range and in the northern Sulfur Spring Range. Typically, Hopeka and Cavehill soils overlie these rocks.

Limestone of lower Pennsylvanian to upper Permian age is in the Buckskin Mountains, the Grindstone Mountains, and the Cedar Ridge area *(8)*. Typically, Izod, Samor, and Nirac soils overlie these rocks.

Tertiary volcanic extrusives and shallow igneous rocks underlie most of the uplands in the north-central part of the survey area and in the Robinson Mountain area *(8)*. These rocks consist chiefly of rhyolitic flows and welded and nonwelded silicic ash flow tuff. These flows now conceal the older rocks in much of the northern part of the survey area. Typically, Cotant, Akler, Lerrow, Linkup, and Shively soils overlie these rocks.

Normal faulting of the Tertiary and Pleistocene orogeny is responsible for many of the topographic features in the survey area. This faulting, which has been continuous to the present, began before the Humboldt Formation was deposited. The Humboldt Formation was deposited during relatively quiet intervals between major epochs of volcanism *(17, 18)*. It now makes up the majority of the intermontane basins in the survey area. It consists of lakebeds, ash, tuff, and clastic deposits laid down by streams. Typically, Donna,

Eboda, Stampede, Hunnton, Wieland, and Puett soils overlie this material.

Recent alluvium is the youngest material in the survey area. It is on the flood plains adjacent to the Humboldt River and its tributaries. It is stratified clay, silt, sand, and gravel. Typically, Devilsgait, Woofus, Sonoma, Ocala, Welch, and Crooked Creek soils overlie this material.

Climate

In this survey area summers are hot, especially at the lower elevations, and winters are cold. Precipitation is normally light at the lower elevations during all months of the year. At the higher elevations, precipitation is much greater and snow accumulates to considerable depths. Much of the snowmelt irrigates crops in nearby valleys.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Carlin, Elko, Jiggs, Owyhee, Tuscarora, and Wells, Nevada, for a period somewhere between 1939 and 1978. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 27 degrees F at Carlin, Elko, and Jiggs; 30 degrees at Owyhee; 28 degrees at Tuscarora; and 25 degrees at Wells. The average daily minimum temperature in winter is 20 degrees at Carlin and Owyhee, 15 degrees at Elko, 13 degrees at Jiggs and Wells, and 18 degrees at Tuscarora. The lowest temperature on record, which occurred at Elko on January 21, 1937, is -43 degrees. In summer the average temperature is 68 degrees at Carlin, 66 degrees at Elko, 63 degrees at Jiggs, 65 degrees at Owyhee and Wells, and 64 degrees at Tuscarora. The average daily maximum temperature in summer is 80 degrees at Carlin and Tuscarora; 85 degrees at Elko, Jiggs, and Wells; and 81 degrees at Owyhee. The highest recorded temperature, which occurred at Elko on August 4, 1978, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 15 inches at Carlin, 9 inches at Elko, 12 inches at Jiggs and Tuscarora, 14 inches at Owyhee, and 10 inches at Wells. Of these totals, 40 to 50 percent usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 2 inches. The heaviest 1-day rainfall during the period of record was 4.13 inches at Elko on August 27, 1970. Thunderstorms occur on about 20 days each year.

The average seasonal snowfall is about 40 to 60 inches. The greatest snow depth at any one time during the period of record was 42 inches at Tuscarora on December 28, 1968. On an average of 20 to 30 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year. Every few years a blizzard with high winds and drifting snow strikes the survey area. Even at the lower elevations, snow remains on the ground for many weeks and livestock suffer.

The average relative humidity in midafternoon is about 40 percent. Humidity is higher at night, and the average at dawn is about 70 percent. The sun shines about 80 percent of the time possible in summer and 70 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 7 miles per hour, in spring.

How This Survey Was Made

This survey was made to provide information about the soils and the miscellaneous areas in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. The fieldwork in most parts of the survey area was done by soil scientists from the Natural Resources Conservation Service, but the fieldwork in the southwestern and north-central parts of the survey area was done by soil scientists from Earth Environmental Consultants, Inc., under contract with the Bureau of Land Management.

Access to the 71 Ranch was denied to the field mapping party. As a result, field mapping of this limited area was completed through photo interpretation and not by actual field observation. This procedure limits the reliability of the soil interpretations for use and management within this specific area.

Some discrepancies emerged in joining the soil surveys of the Tuscarora Mountain and Diamond Valley areas. Older published soil surveys of these areas were completed within the framework of the then existing knowledge and standards. A better understanding of soils and improved mapping techniques have been developed. Consequently, some of the soil names, map unit components, or physiographic positions may not be exactly the same as before. These differences should have little or no effect on the use of these surveys for management purposes.

During the course of this survey, soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unmodified parent material in which the soil formed. This unmodified material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil or miscellaneous area is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The soils or miscellaneous areas making up one unit can occur in other units but in a different pattern.

Figure 4 illustrates how the general soil map units relate to various broad landscapes. The map units in figure 4 are representative of those on a semibolson that is an externally drained intermontane basin.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils or miscellaneous areas can be identified on the map. Likewise, areas that are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road, building, or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The general soil map units in this survey area have been grouped for broad purposes. Each of the broad groups and the map units in each group are described on the following pages.

Map Unit Descriptions

Areas Dominated by Soils on Basin Floors

This group consists of three map units. Elevation is 5,000 to 6,400 feet. The mean annual precipitation is 8 to 12 inches, the mean annual temperature is 42 to 50 degrees F, and the frost-free period is 80 to 120 days.

These soils are nearly level and very deep. They are medium textured over coarse textured to fine textured. Some of the soils are young and exhibit little, if any, profile development. The rest are on the slightly older geomorphic surfaces and exhibit a minimal degree of profile development.

Most of these soils have a seasonal high water table and are subject to flooding. The rest are well drained and are subject to rare flooding. Some of the soils are saline and sodic. The rest are not affected by salt and sodium.

1. Devilsgait-Woofus-Moranch

Nearly level, very deep, very poorly drained and well drained soils; on flood plains and fan skirts

This map unit is in the central part of the survey area, which comprises the major drainage of the Humboldt River and the South Fork of the Humboldt River. The Devilsgait and Woofus soils support mainly creeping wildrye, basin wildrye, and inland saltgrass. The Moranch soils support mainly black greasewood, basin wildrye, and inland saltgrass.

This map unit makes up about 3 percent of the survey area.

The Devilsgait and similar soils are very deep and very poorly drained and are on flood plains. They are stratified and dominantly medium textured and moderately fine textured throughout. They are not saline or sodic. They are subject to frequent flooding.

The Woofus and similar soils are very deep and very poorly drained and are on flood plains. They are dominantly medium textured and moderately fine textured over coarse textured. They are not saline or sodic. They are subject to frequent flooding.

The Moranch and similar soils are very deep and well drained and are on fan skirts. They are dominantly medium textured throughout. They are slightly saline and strongly sodic. They are subject to rare flooding.

Of minor extent in this unit are the Ocala and Kelk soils. The Ocala soils are on alluvial flats. They support black greasewood, basin wildrye, and western wheatgrass. The Kelk soils are on fan skirts. They support big sagebrush and Thurber needlegrass.

This unit is used for livestock grazing, rangeland

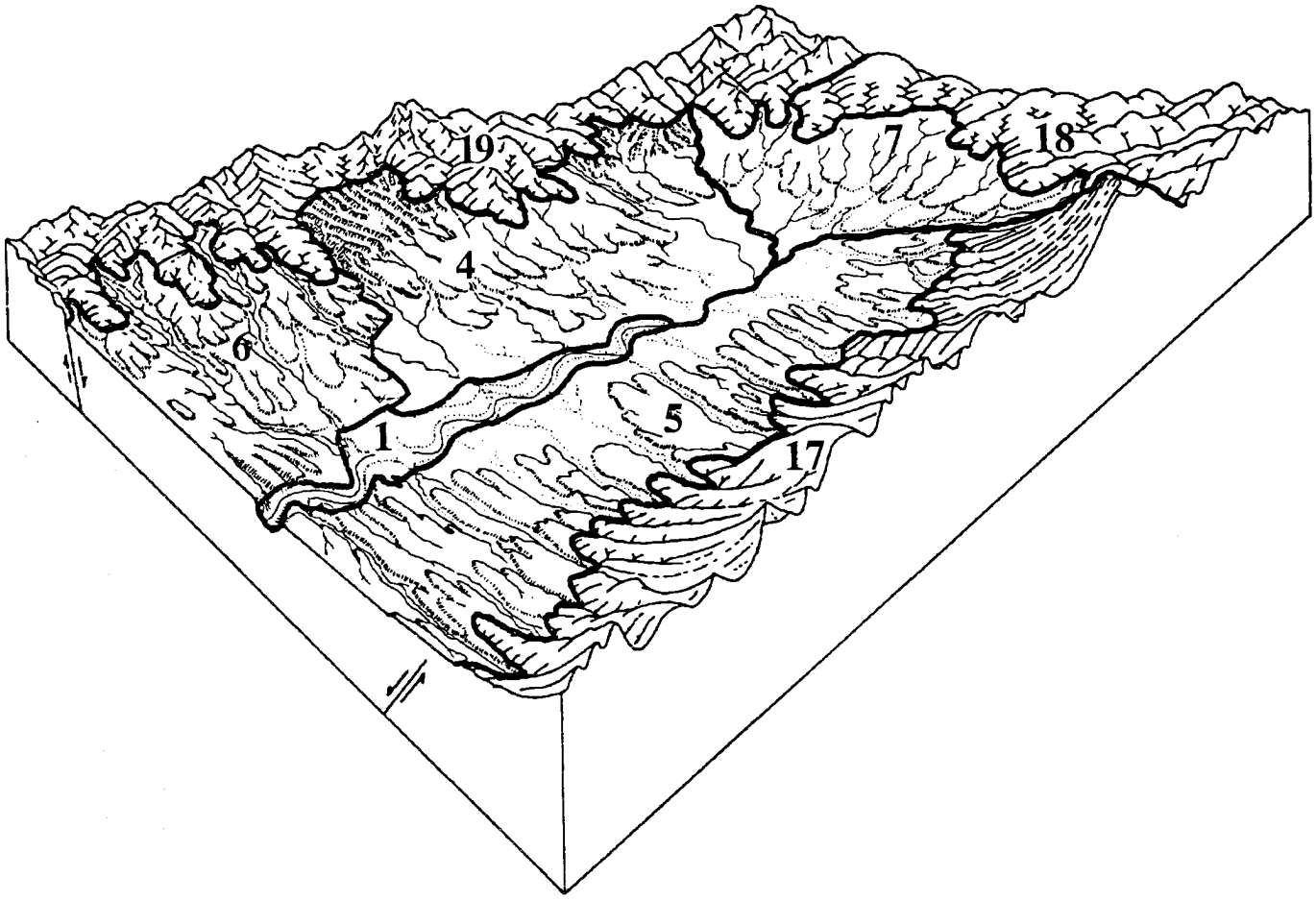

Figure 4.—General soil map units representative of those on a semibolson that is an externally drained intermontane basin. The units are as follows: 1—Devilsgait-Woofus-Moranch; 4—Orovada-Bioya-Puett; 5—Hunnton-Wieland-Bilbo; 6—McIvey-Stampede-Betra; 7—Donna-Stampede-Bilbo; 17—Cleavage-Quarz-Loncan; 18—Cotant-McIvey-Lerrow; and 19—Sumine-Cleavage-Hapgood.

wildlife habitat, and irrigated hay and pasture.

2. Sonoma-Devilsgait-Ocala

Nearly level, very deep, very poorly drained to somewhat poorly drained soils; on basin floors

This map unit is in the southern, central, and east-central parts of the survey area. The Sonoma soils support mainly creeping wildrye, basin wildrye, and mat muhly. The Devilsgait soils support mainly creeping wildrye, basin wildrye, and inland saltgrass. The Ocala soils support mainly basin wildrye, black greasewood, alkali sacaton, and inland saltgrass.

This map unit makes up about 2 percent of the survey area.

The Sonoma and similar soils are very deep and poorly drained and are on flood plains and alluvial flats. They are dominantly medium textured and moderately fine textured throughout. They are slightly saline and are slightly sodic to strongly sodic. They are subject to occasional flooding.

The Devilsgait and similar soils are very deep and very poorly drained and are on flood plains. They are stratified and dominantly medium textured and moderately fine textured throughout. They are not saline or sodic. They are subject to occasional or frequent flooding.

The Ocala and similar soils are very deep and somewhat poorly drained and are on alluvial flats and the outer margin of flood plains. They are dominantly medium textured and moderately fine textured throughout. They are slightly saline and sodic to

strongly saline and sodic. They are subject to occasional flooding.

Of minor extent in this unit are the Kelk, Moranch, Woofus, and Bloor soils. The Kelk soils are on the upper fan skirts. They support big sagebrush and Thurber needlegrass. The Moranch soils are on the lower fan skirts. They support black greasewood, basin wildrye, and inland saltgrass. The very poorly drained Woofus soils are on flood plains. They support basin big sagebrush, basin wildrye, and Nevada bluegrass. The Bloor soils are on alluvial flats. They support plants similar to those on the Ocala soils.

This unit is used for livestock grazing, irrigated hay and pasture, and rangeland wildlife habitat.

3. Crooked Creek-Hussa

Nearly level, very deep, poorly drained soils; on flood plains

This map unit is in the northwestern, northeastern, and southeastern parts of the survey area. The Crooked Creek and Hussa soils support mainly tufted hairgrass, sedge, and rush.

This map unit makes up about 1 percent of the survey area.

The Crooked Creek and similar soils are very deep and poorly drained and are on flood plains. They are dominantly fine textured throughout. They are not saline or sodic. They are subject to occasional or frequent flooding.

The Hussa and similar soils are very deep and poorly drained and are on flood plains. They are dominantly moderately fine textured throughout. They are not saline or sodic. They are subject to occasional flooding.

Of minor extent in this unit are the Alburz Variant soils in the Lamoille Valley area and near Lee. These soils support cottonwood, sedge, and bluegrass.

This unit is used for livestock grazing, irrigated hay and pasture, rangeland, and wildlife habitat.

Areas Dominated by Soils on Fan Piedmonts

This group consists of four map units. Elevation is 5,000 to 7,600 feet. The mean annual precipitation is 8 to 16 inches. the mean annual temperature is 40 to 50 degrees F, and the frost-free period is about 70 to 120 days.

These soils are gently sloping to steep. They are moderately deep to a duripan or are shallow or very deep. They are moderately coarse textured to very gravelly or very cobbly and fine textured or very fine textured. The soils are on the older geomorphic surfaces. Many of them have accumulated clay in the subsoil and cemented silica in the substratum.

The soils in this group are well drained and are not subject to flooding.

4. Orovada-Bioya-Puett

Gently sloping to steep, well drained soils that are moderately deep to a duripan or are shallow or very deep; on fan piedmont remnants, in the rock-core areas of fan piedmont remnants, and on partial ballenas

This map unit is in the White Flats and Dennis Flats areas and in the north end of the Lamoille Valley. The Orovada and Bioya soils support mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Puett soils support mainly Wyoming big sagebrush, black sagebrush, Indian ricegrass, and bottlebrush squirreltail.

This map unit makes up about 11 percent of the survey area.

The Orovada and similar soils are very deep, are gently sloping to strongly sloping, and are on fan piedmont remnants. They have a medium textured surface layer over a medium textured and moderately coarse textured substratum.

The Bioya and similar soils are gently sloping to strongly sloping. They are moderately deep to a duripan. They are on fan piedmont remnants and partial ballenas. They have a medium textured surface layer and subsoil over an indurated duripan.

The Puett and similar soils are shallow, are moderately steep and steep, and are in the rock-core areas of fan piedmont remnants and on the side slopes of partial ballenas. They are moderately coarse textured and are underlain by soft bedrock.

Of minor extent in this unit are the Wieland, Tustell, Hunnton, Hussa, Kodra, and Perwick soils along the Eureka County line. The Wieland, Tustell, Hunnton, and Kodra soils are on the summits of fan piedmont remnants. They support big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Hussa soils are on narrow flood plains. They support creeping wildrye, basin wildrye, and inland saltgrass. The Perwick soils are in the rock-core areas of fan piedmont remnants and on the side slopes of partial ballenas. They support Utah juniper and big sagebrush.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used for homesite development.

5. Hunnton-Wieland-Bilbo

Gently sloping to steep, well drained soils that are moderately deep to a duripan or are very deep; on fan piedmont remnants

This map unit is in valleys throughout the survey area. The Hunnton, Wieland, and Bilbo soils support

mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This map unit makes up about 29 percent of the survey area.

The Hunnton and similar soils are gently sloping to strongly sloping and are moderately deep to a duripan. They are on fan piedmont remnants. They have a medium textured surface layer and a fine textured subsoil over an indurated duripan.

The Wieland and similar soils are very deep, are gently sloping to moderately steep, and are on fan piedmont remnants. They have a gravelly, medium textured surface layer and a fine textured subsoil over a weakly cemented, gravelly, moderately fine textured substratum.

The Bilbo and similar soils are very deep and steep and are on the side slopes of fan piedmont remnants. They generally have a medium textured surface layer and a very gravelly, fine textured subsoil over an extremely gravelly, moderately coarse textured substratum.

Of minor extent in this unit are the Crooked Creek soils, drained areas of the Hussa soils, and the Puett, Kelk, and Chiara soils. The Crooked Creek soils are on narrow flood plains. They support tufted hairgrass and sedge. The drained Hussa soils are on narrow flood plains. They support basin big sagebrush and basin wildrye. The Puett soils are in rock-core areas on the side slopes of fan piedmont remnants. They support Wyoming big sagebrush, black sagebrush, and Indian ricegrass. The Kelk soils are on inset fans and fan skirts. The Chiara soils are on the summits of fan piedmont remnants. The Kelk and Chiara soils support plants similar to those on the major soils.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used for homesite or urban development.

6. McIvey-Stampede-Betra

Gently sloping to strongly sloping, well drained soils that are moderately deep to a duripan or are very deep; on fan piedmont remnants

This map unit is in the southeastern and northwestern parts of the survey area, along the base of the Ruby Mountains, the East Humboldt Range, and the Independence Mountains. The McIvey soils support mainly mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Stampede soils support mainly big sagebrush, bluebunch wheatgrass, and Thurber needlegrass. The Betra soils support mainly low sagebrush, Idaho fescue, and bluebunch wheatgrass.

This map unit makes up about 3 percent of the survey area.

The McIvey and similar soils are very deep, are gently sloping to strongly sloping, and are on the summits and side slopes of fan piedmont remnants. They have a gravelly, medium textured surface layer over a very gravelly or very cobbly, fine textured subsoil.

The Stampede and similar soils are gently sloping and moderately sloping and are moderately deep to a duripan. They are on the summits of fan piedmont remnants. They have a gravelly, medium textured surface layer and a gravelly, fine textured subsoil over an indurated duripan.

The Betra and similar soils are gently sloping and moderately sloping and are moderately deep to a duripan. They are on the summits of fan piedmont remnants. They have a cobbly, medium textured surface layer and a very gravelly or very cobbly, fine textured subsoil over a strongly cemented duripan.

Of minor extent in this unit are the Short Creek, Heechee, Alburz Variant, and Hussa soils. The Short Creek soils are on the side slopes of fan piedmont remnants. They support big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Heechee soils are on the summits of fan piedmont remnants. They support antelope bitterbrush, mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Alburz Variant soils are on narrow flood plains. They support cottonwood and sedge. The Hussa soils are on narrow flood plains. They support tufted hairgrass and sedge.

This unit is used mainly for livestock grazing and rangeland wildlife habitat. Some areas are used for irrigated hay and pasture.

7. Donna-Stampede-Bilbo

Gently sloping to steep, well drained soils that have a dense claypan and are moderately deep to a duripan or are very deep; on fan piedmont remnants

This map unit is northeast of the Lamoille Valley and borders part of the Independence Mountains and the Adobe Range in the lower northeast corner of the survey area. The Donna soils support mainly low sagebrush, Idaho fescue, and bluebunch wheatgrass. The Stampede and Bilbo soils support mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This map unit makes up about 9 percent of the survey area.

The Donna and similar soils are gently sloping to strongly sloping and are on the summits of fan piedmont remnants. They are moderately deep to a

duripan. They have a gravelly, medium textured surface layer and a very fine textured subsoil over an indurated duripan.

The Stampede and similar soils are gently sloping to strongly sloping and are moderately deep to a duripan. They are on the summits and side slopes of fan piedmont remnants. They have a gravelly, medium textured surface layer and a fine textured subsoil over an indurated duripan.

The Bilbo and similar soils are very deep and steep and are on the side slopes of fan piedmont remnants. They have a very gravelly, medium textured surface layer; a very gravelly, fine textured subsoil; and an extremely gravelly, moderately coarse textured substratum.

Of minor extent in this unit are the Hunnton, Tustell, Quarz, and Hussa soils. The Hunnton, Tustell, and Quarz soils are on fan piedmont remnants. They support plants similar to those on the Stampede soils. The Hussa soils are on narrow flood plains. They support tufted hairgrass and sedge.

This unit is used for livestock grazing and rangeland wildlife habitat.

Areas Dominated by Soils on Hills and Fan Piedmonts

This group consists of six map units. The soils in this group are dominantly on hills but also are on the adjacent fan piedmont remnants. Elevation is 5,000 to 7,600 feet. The mean annual precipitation is 8 to 16 inches, the mean annual temperature is 41 to 51 degrees F, and the frost-free period is about 70 to 120 days.

These soils are gently sloping to steep and are very shallow, shallow, moderately deep, or very deep or are shallow to a duripan. The soils range from moderately coarse textured to fine textured or very gravelly or very cobbly and fine textured. They are on the older geomorphic surfaces and have a layer of accumulated clay in the subsoil or cemented silica in the substratum. Some of the soils are very shallow or shallow to bedrock and are eroding nearly as rapidly as they are forming.

The soils in this group are well drained or somewhat excessively drained and are not subject to flooding.

8. Grina-Karpp-Rad

Gently sloping to steep, well drained soils that are shallow to a duripan or are shallow or very deep; on hills and fan piedmont remnants

This map unit is in the Cedar Ridge area and the Elko Hills area. The Grina and Karpp soils support mainly Utah juniper and big sagebrush. The Rad soils support mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This map unit makes up about 2 percent of the survey area.

The Grina and similar soils are shallow, are moderately steep and steep, and are on hills. They are dominantly medium textured or moderately fine textured throughout and are underlain by soft bedrock.

The Karpp and similar soils are gently sloping to strongly sloping, are shallow to a duripan, and are on the summits and side slopes of fan piedmont remnants. They have a medium textured surface layer and a very gravelly, medium textured subsoil over an indurated duripan.

The Rad and similar soils are very deep, are gently sloping to strongly sloping, and are on the side slopes of fan piedmont remnants. They are dominantly medium textured throughout.

Of minor extent in this unit are the Perwick and Bunky soils. The Perwick soils are on the side slopes of hills. They support Utah juniper and Wyoming big sagebrush. The Bunky soils are on the summits of fan piedmont remnants. They support big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This unit is used for woodland, livestock grazing, and rangeland wildlife habitat.

9. Yuko-Tuffo

Gently sloping to steep, very shallow and shallow, somewhat excessively drained and well drained soils; on hills

This map unit is in the west-central part of the survey area. The Yuko and Tuffo soils support mainly big sagebrush, bluebunch wheatgrass, and Thurber needlegrass.

This map unit makes up about 1 percent of the survey area.

The Yuko and similar soils are shallow, well drained, and strongly sloping to steep and are on hills. They have a very gravelly, medium textured surface layer and a moderately fine textured subsoil over soft bedrock.

The Tuffo and similar soils are very shallow and shallow, somewhat excessively drained, and gently sloping to moderately steep and are on hills. They are dominantly moderately coarse textured and are underlain by soft bedrock.

Of minor extent in this unit are the Enko and Crooked Creek soils. The Enko soils are on the foot slopes of hills. They support plants similar to those on the Yuko and Tuffo soils. The poorly drained Crooked Creek soils are in narrow drainageways on hills. They support basin big sagebrush and basin wildrye.

This unit is used for livestock grazing and rangeland wildlife habitat.

10. Izod-Porrone-Chiara

Moderately sloping to steep, somewhat excessively drained and well drained soils that are shallow to a duripan or are shallow or very deep; on hills and the adjacent fan piedmont remnants

This map unit is in the north end of Dixie Flats. The Izod soils support mainly black sagebrush, Indian ricegrass, and Thurber needlegrass. The Porrone and Chiara soils support mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This map unit makes up about 1 percent of the survey area.

The Izod and similar soils are shallow, somewhat excessively drained, and moderately sloping to very steep and are on hill crests and side slopes. They are dominantly very gravelly or extremely gravelly and medium textured and are underlain by hard bedrock.

The Porrone and similar soils are very deep, well drained, and steep and are on side slopes. They are dominantly very gravelly and medium textured throughout.

The Chiara and similar soils are shallow to a duripan, well drained, and moderately sloping and strongly sloping and are on fan piedmont remnants. They are dominantly medium textured over an indurated duripan.

Of minor extent in this unit are the Gochea and Spilock soils and areas of rock outcrop. The very deep Gochea soils are on hills and fan piedmont remnants. They support plants similar to those on the Porrone and Chiara soils. The Spilock soils are on fan piedmont remnants. They support Utah juniper and big sagebrush. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for livestock grazing and rangeland wildlife habitat.

11. Samor-Nirac-Izod

Moderately steep and steep, shallow and moderately deep, somewhat excessively drained and well drained soils; on hills

This map unit is in the Cedar Ridge area and in the west-central part of the survey area. The Samor soils support mainly Utah juniper and big sagebrush. The Nirac soils support mainly mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Izod soils support mainly black sagebrush, Indian ricegrass, and Thurber needlegrass.

This map unit makes up about 1 percent of the survey area.

The Samor and similar soils are shallow, well drained, and moderately steep and steep and are on hill crests and side slopes. They have a very gravelly, medium textured surface layer and a very cobbly or very gravelly, medium textured subsoil over hard bedrock.

The Nirac and similar soils are moderately deep, well drained, and moderately steep and steep and are on the side slopes of hills. They have a gravelly, medium textured surface layer and a very gravelly, medium textured subsoil over hard bedrock.

The Izod and similar soils are shallow, somewhat excessively drained, and moderately steep and steep and are on hill crests and side slopes. They are dominantly very gravelly or extremely gravelly and medium textured throughout and are underlain by hard bedrock.

Of minor extent in this unit are the Porrone, Akler, Eboda, and Gochea soils and areas of rock outcrop. The Porrone soils are on side slopes. They support big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Akler soils are on hill crests and side slopes. They support low sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Eboda soils are on the concave side slopes of hills. They support big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Gochea soils are on the side slopes of hills. They support big sagebrush, Thurber needlegrass, and bluebunch wheatgrass. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for livestock grazing, woodland, and rangeland wildlife habitat.

12. Linkup-Roca

Strongly sloping to steep, shallow and moderately deep, well drained soils; on hills

This map unit is on hills throughout the survey area. The Linkup soils support mainly low sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Roca soils support mainly big sagebrush, Thurber needlegrass, and bluebunch wheatgrass.

This map unit makes up about 6 percent of the survey area.

The Linkup and similar soils are shallow, are strongly sloping to moderately steep, and are on hill crests and side slopes. They have a very cobbly, medium textured surface layer and a cobbly, fine textured subsoil over hard bedrock.

The Roca and similar soils are moderately deep, are moderately steep and steep, and are on the side slopes of hills. They have a very gravelly, medium textured surface layer and a very cobbly or very gravelly, fine textured subsoil over hard bedrock.

Of minor extent in this unit are the Izod, Akler, and

Kleckner soils and areas of rock outcrop. The Izod soils are on hill crests and side slopes. They support black sagebrush, Indian ricegrass, and Thurber needlegrass. The Akler soils are on hill crests and side slopes. They support plants similar to those on the Linkup soils. The Kleckner soils are on the side slopes of hills. They support plants similar to those on the Roca soils. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for livestock grazing and rangeland wildlife habitat.

13. Tweener-McIvey

Gently sloping to moderately steep, very shallow, shallow, and very deep, well drained soils; on hills and fan piedmont remnants

This map unit is in the northern part of the survey area. The Tweener soils support mainly antelope bitterbrush, Idaho fescue, and bluebunch wheatgrass. The McIvey soils support mainly mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass.

This map unit makes up about 1 percent of the survey area.

The Tweener and similar soils are very shallow or shallow, are gently sloping to moderately steep, and are on hill crests and side slopes. They have a very gravelly, medium textured surface layer and a very cobbly, medium textured or moderately fine textured subsoil over hard bedrock.

The McIvey and similar soils are very deep, are gently sloping or moderately sloping, and are on fan piedmont remnants. They have a very gravelly, medium textured surface layer over a very gravelly or very cobbly, fine textured subsoil.

Of minor extent in this unit are the Cleavage soils and drained areas of the Welch soils. The Cleavage soils are on hills. They support low sagebrush, black sagebrush, and Idaho fescue. The drained Welch soils are in narrow drainageways on hills. They support basin big sagebrush and basin wildrye.

This unit is used for livestock grazing and rangeland wildlife habitat.

Areas Dominated by Soils on Plateaus

This group consists of two map units. The soils in this group are dominantly on the side slopes and summits of plateaus. Elevation is 5,000 to 7,400 feet. The mean annual precipitation is 10 to 16 inches, the mean annual temperature is 40 to 45 degrees F, and the frost-free period is 70 to 100 days.

These soils are gently sloping to very steep. They are shallow, moderately deep, or very deep or are shallow to a duripan. They have a medium textured to extremely stony, medium textured surface layer over a very gravelly, medium textured to extremely cobbly, fine textured or fine textured subsoil that in some areas overlies a duripan or bedrock. The soils are on the older geomorphic surfaces and have an organically enriched surface layer and accumulated clay in the subsoil.

These soils are well drained and are not subject to flooding.

14. Sumine-Vitale-Bullvaro

Steep and very steep, moderately deep and very deep, well drained soils; on the side slopes of plateaus

This map unit is in the extreme north part of the survey area. The Sumine soils support mainly bluebunch wheatgrass, basin wildrye, and mountain big sagebrush. The Vitale soils support mainly Idaho fescue, bluebunch wheatgrass, and big sagebrush. The Bullvaro soils support mainly Idaho fescue, bluebunch wheatgrass, and low sagebrush.

This map unit makes up about 1 percent of the survey area.

The Sumine and similar soils are moderately deep, are steep and very steep, and are on the side slopes of plateaus. They have an extremely stony, medium textured surface layer and a very gravelly or very cobbly, moderately fine textured subsoil over hard bedrock.

The Vitale and similar soils are moderately deep and are steep and very steep. They have a very gravelly, medium textured surface layer and a very gravelly, medium textured or moderately fine textured subsoil over hard bedrock.

The Bullvaro and similar soils are very deep and are steep and very steep. They have a medium textured surface layer and a very gravelly, medium textured subsoil over an extremely gravelly, moderately coarse textured substratum.

Of minor extent in this unit are the Hackwood, Gollaher, Inpendence, and Siri soils and areas of rock outcrop and rubble land. The Hackwood soils are on the side slopes of plateaus. They support quaking aspen and mountain brome. The Gollaher soils are on the side slopes of plateaus. They support Rocky Mountain juniper and big sagebrush. The Inpendence soils are on mountain side slopes. They support snowbrush ceanothus. The Siri soils are on the side slopes of plateaus. They support black sagebrush, Thurber needlegrass, and bluebunch wheatgrass. Rock outcrop and rubble land are throughout the unit. They are barren of vegetation.

This unit is used for rangeland, wildlife habitat, and livestock grazing.

15. Chen-Ebic-Manard

Gently sloping to strongly sloping, well drained soils that are moderately deep to a duripan or are shallow or moderately deep; on plateaus

This map unit is in the extreme north part of the survey area. The Chen, Ebic, and Manard soils support mainly low sagebrush, Idaho fescue, and bluebunch wheatgrass.

This map unit makes up about 2 percent of the survey area.

The Chen and similar soils are shallow, are gently sloping and moderately sloping, and are on the summits of plateaus. They have a gravelly, medium textured surface layer and a very gravelly or very cobbly, fine textured subsoil over hard bedrock.

The Ebic and similar soils are moderately deep, are gently sloping to strongly sloping, and are on plateaus. They have a gravelly, medium textured surface layer and a very cobbly or extremely cobbly, fine textured subsoil over hard bedrock.

The Manard and similar soils are moderately deep to a duripan, are gently sloping to strongly sloping, and are on plateaus. They have a medium textured surface layer, a fine textured subsoil, and an indurated duripan over hard bedrock.

Of minor extent in this unit are the Heechee, Glean, and Inpendence soils. The Heechee soils are on plateaus. They support antelope bitterbrush, bluebunch wheatgrass, and Idaho fescue. The Glean soils are on mountain side slopes. They support mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Inpendence soils are on the short side slopes of plateaus and on mountain side slopes. They support quaking aspen and mountain brome.

This unit is used for livestock grazing and rangeland wildlife habitat.

Areas Dominated by Soils on Mountains

This group consists of four map units. The soils in this group are dominantly on mountain crests and side slopes. Elevation is 5,600 to 8,700 feet. The mean annual precipitation is 10 to more than 16 inches, the mean annual temperature is 38 to 45 degrees F, and the frost-free period is 50 to 100 days.

These soils are moderately sloping to very steep and are very shallow to very deep. They have an extremely gravelly to cobbly, medium textured surface layer over very gravelly, moderately coarse textured to fine textured material that in some areas overlies bedrock. These soils generally are on the older geomorphic surfaces and have an organically enriched surface layer and accumulated clay in the subsoil. A few of the soils are on the younger geomorphic surfaces and are eroding nearly as rapidly as they are forming.

The soils in this group are well drained and are not subject to flooding.

16. Hopeka-Cavehill-Pernog

Moderately steep and steep, very shallow to moderately deep, well drained soils; on mountains

This map unit is in the Pinyon Range and Sulfur Spring Mountains. The Hopeka soils support mainly singleleaf pinyon, Utah juniper, and black sagebrush. The Cavehill soils support mainly singleleaf pinyon and mountain big sagebrush. The Pernog soils support mainly curlleaf mountainmahogany, bluebunch wheatgrass, and pine bluegrass.

This map unit makes up about 1 percent of the survey area.

The Hopeka and similar soils are very shallow, are moderately steep and steep, and are on the crests and side slopes of mountains. They are dominantly very gravelly and medium textured and are underlain by hard bedrock.

The Cavehill and similar soils are moderately deep, are moderately steep and steep, and are on mountain side slopes. They have a very gravelly, medium textured surface layer and a very gravelly or very cobbly, medium textured subsoil over hard bedrock.

The Pernog and similar soils are shallow, are moderately steep and steep, and are on mountain crests and side slopes. They have a stony, medium textured surface layer and a very stony, medium textured or moderately fine textured subsoil over hard bedrock.

Of minor extent in this unit are the Eboda, Hackwood, Bucan, Gando, and Izod soils and areas of rock outcrop. The Eboda soils are on the lower, concave mountain side slopes. They support big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Hackwood soils are on the upper, concave mountain side slopes. They support quaking aspen and mountain brome. The Bucan soils are on the lower, convex mountain side slopes. They support low sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Gando soils are on mountain side slopes. They support singleleaf pinyon, Utah juniper, and big sagebrush. The Izod soils are on mountain crests. They support black sagebrush, needleandthread, and Indian ricegrass. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for woodland, livestock grazing, and rangeland wildlife habitat.

17. Cleavage-Quarz-Loncan

Moderately steep and steep, shallow and moderately deep, well drained soils; on mountains

This map unit is throughout the survey area. The Cleavage soils support mainly low sagebrush, black sagebrush, and Idaho fescue. The Quarz soils support mainly mountain big sagebrush, bluebunch wheatgrass, and basin wildrye. The Loncan soils support mainly mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass.

This map unit makes up about 10 percent of the survey area.

The Cleavage and similar soils are shallow, are moderately steep and steep, and are on mountain crests and side slopes. They have an extremely gravelly, medium textured surface layer and a very gravelly, medium textured or extremely gravelly or very cobbly, moderately fine textured subsoil over hard bedrock.

The Quarz and similar soils are moderately deep, are moderately steep and steep, and are on mountain side slopes. They have a very gravelly, medium textured surface layer and a very gravelly, fine textured subsoil over hard bedrock.

The Loncan and similar soils are moderately deep, are moderately steep and steep, and are on mountain side slopes. They have a very gravelly, medium textured surface layer and a very gravelly or extremely cobbly, medium textured subsoil over hard bedrock.

Of minor extent in this unit are the Linkup, Kleckner, Welch, and Crooked Creek soils. The Linkup soils are on the lower side slopes of mountains. They support low sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Kleckner soils are on mountain side slopes. They support plants similar to those on the Loncan soils. The Welch soils are in narrow drainageways in the mountains. They support tufted hairgrass and Nevada bluegrass. The poorly drained Crooked Creek soils are in narrow drainageways in the mountains. They support basin big sagebrush and basin wildrye.

This unit is used for livestock grazing and rangeland wildlife habitat.

18. Cotant-McIvey-Lerrow

Moderately sloping to steep, shallow, moderately deep, and very deep, well drained soils; on mountains

This map unit is in the northern and northwestern parts of the survey area. The Cotant soils support mainly low sagebrush, Idaho fescue, and bluebunch wheatgrass. The McIvey soils support mainly mountain big sagebrush, Idaho fescue, and bluebunch wheatgrass. The Lerrow soils support mainly mountain big sagebrush, bluebunch wheatgrass, and basin wildrye.

This map unit makes up about 9 percent of the survey area.

The Cotant and similar soils are shallow, are moderately sloping to steep, and are on mountain crests and side slopes. They have a very cobbly, medium textured surface layer and a fine textured subsoil over soft bedrock.

The McIvey and similar soils are very deep, are moderately steep and steep, and are on mountain side slopes. They have a cobbly, medium textured surface layer over a very gravelly or very cobbly, fine textured subsoil.

The Lerrow and similar soils are moderately deep, are moderately steep and steep, and are on mountain side slopes. They have a cobbly, medium textured surface layer and a fine textured or gravelly or cobbly, fine textured subsoil over soft bedrock.

Of minor extent in this unit are the Cleavage, Loncan, Akler, Shively, Welch, and Hackwood soils and areas of rock outcrop. The Cleavage soils are on the crests and upper side slopes of mountains. They support low sagebrush, black sagebrush, and Idaho fescue. The Loncan and Shively soils are on mountain side slopes. They support plants similar to those on the McIvey soils. The Akler soils are on the lower mountain side slopes. They support low sagebrush, Thurber needlegrass, and bluebunch wheatgrass. The Welch soils are in narrow drainageways in the mountains. They support tufted hairgrass and Nevada bluegrass. The Hackwood soils are on concave mountain side slopes. They support quaking aspen and mountain brome. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for livestock grazing and rangeland wildlife habitat.

19. Sumine-Cleavage-Hapgood

Moderately steep to very steep, shallow to deep, well drained soils; on mountains

This map unit is in the mountains in the central and northern parts of the survey area. The Sumine soils support mainly mountain big sagebrush, bluebunch wheatgrass, and basin wildrye. The Cleavage soils support mainly low sagebrush, black sagebrush, and Idaho fescue. The Hapgood soils support mainly Idaho fescue, mountain brome, slender wheatgrass, and mountain big sagebrush.

This map unit makes up about 7 percent of the survey area.

The Sumine and similar soils are moderately deep, are moderately steep to very steep, and are on mountain side slopes. They have a very gravelly, medium textured surface layer and a very gravelly or very cobbly, moderately fine textured subsoil over hard bedrock.

The Cleavage and similar soils are shallow, are moderately steep and steep, and are on the crests and upper side slopes of mountains. They have an extremely gravelly, medium textured surface layer and a very gravelly, medium textured or extremely gravelly or very cobbly, moderately fine textured subsoil over hard bedrock.

The Hapgood and similar soils are deep and very deep, are steep and very steep, and are on mountain side slopes. They have a very gravelly, medium textured surface layer over a very gravelly, medium textured or moderately coarse textured subsoil.

Of minor extent in this unit are the Tusel, Hackwood, Inpendence, and Pernog soils and areas of rock outcrop. The Tusel soils are on mountain side slopes. They support Idaho fescue and bluebunch wheatgrass. The Hackwood soils are on concave mountain side slopes. They support quaking aspen and mountain brome. The Inpendence soils are on the upper, concave side slopes of mountains. They support quaking aspen and mountain brome. The Pernog soils are on mountain crests and side slopes. They support curlleaf mountainmahogany, bluebunch wheatgrass, and pine bluegrass. Rock outcrop is throughout the unit. It is barren of vegetation.

This unit is used for livestock grazing and rangeland wildlife habitat.

Broad Land Use Considerations

The soils in this survey area vary widely in their potential for major land uses. They are used for cropland, pasture, rangeland, wildlife habitat, and urban development. Extensive land use changes are not expected in the foreseeable future.

About 95 percent of the land area is used for rangeland and related uses. Map units 1 to 3 have the highest potential for forage production because they are near a water source. Some of the soils in these map units, however, are limited because of a seasonal high water table and accumulated salt and sodium. Map units 4 to 19 are used extensively for range. The soils in map units 4 to 7 are limited mainly by inadequate precipitation. Also, some of the soils in these units are shallow or moderately deep to a hardpan, which limits the rooting depth. The soils in map units 8, 9, 10, and 15 are limited mainly by inadequate precipitation, the slope, and the depth to bedrock or a hardpan. The soils in map units 11, 12, 13, 14, 16, 17, 18, and 19 are limited by the slope, surface rock fragments, and the depth to bedrock.

Pinyon and juniper grow on some of the soils in map units 8, 11, and 16. These woody plants are cut for fenceposts and firewood.

Almost all of the land in the survey area is used by one or more kinds of wildlife. The Humboldt River supports catfish and carp. Its tributaries support rainbow, brook, and brown trout. The most common openland wildlife species are sage grouse, chukar, Hungarian partridge, cottontail rabbit, jackrabbit, coyote, badger, and mule deer. Wildlife are attracted by the water, food, and cover available in the native meadows and pastures.

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and limitations of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes facts about the unit and gives the principal hazards or limitations to be considered in planning for a few specific uses. Soil suitability ratings are given for selected uses, including range seeding; roadfill; topsoil; daily cover for landfill; shallow excavations; local roads and streets; pond reservoir areas; embankments, dikes, and levees; sand, and gravel. The Appendix lists the criteria used to develop these ratings.

The detailed soil map units identified within the survey area reflect the various relationships of soils with component parts of the landscape. These relationships are illustrated in figures 5 and 6. These figures indicate, in a three-dimensional representation, the soil-physiographic relationships typical of the area.

Figure 5 illustrates how some of the map unit delineations appear throughout the various segments of the landscape. Each map unit has one or more major soil components and generally has several contrasting inclusions. Figure 6 shows the physiographic position of each major soil component identified within the respective map units.

Soils that have profiles that are almost alike make up a *soil series*. The soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of one series can differ in texture of the upper layer or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Kodra loam, 0 to 4 percent slopes, is a phase of the Kodra series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are associations. An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. The Donna-Stampede-Gance association is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The Rock outcrop in the Rock outcrop-Pernty-Pernog association is an example.

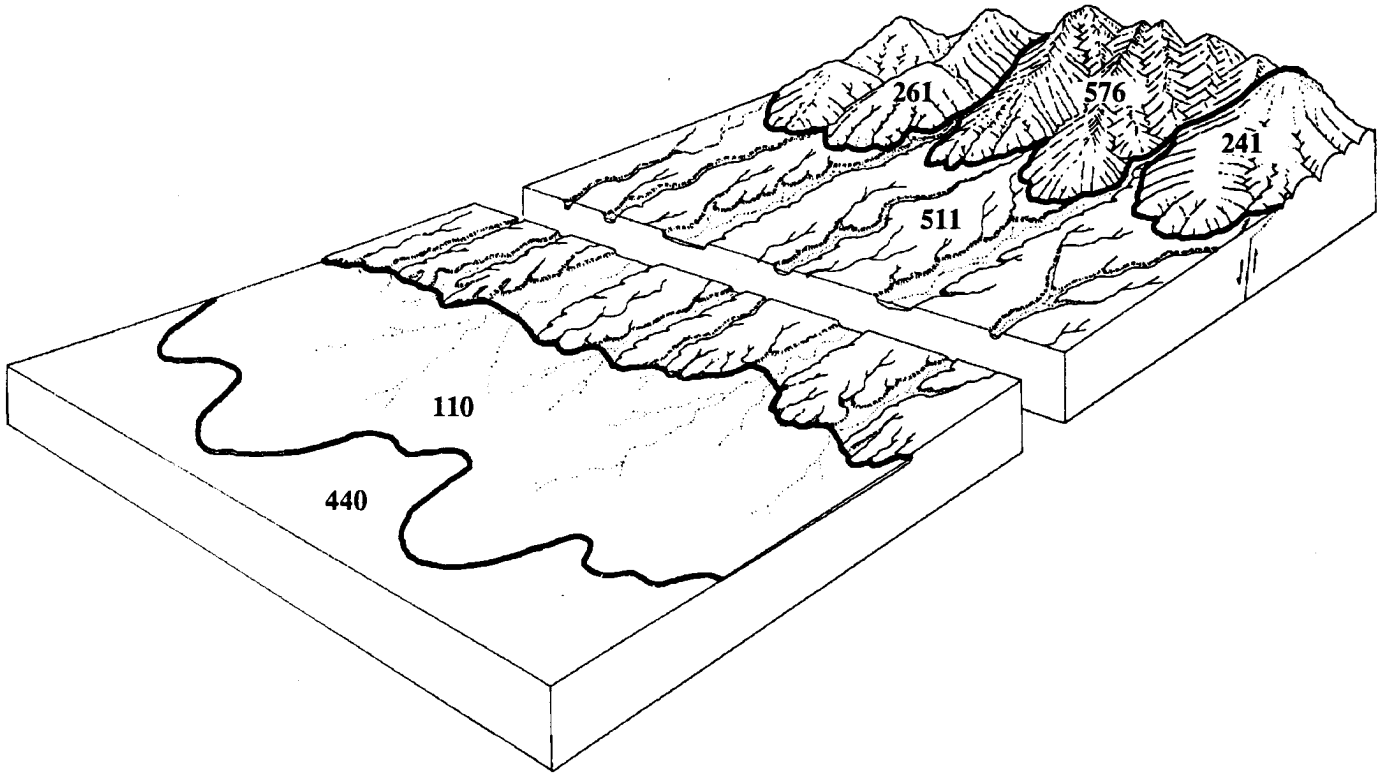

Figure 5.—Representative detailed soil map units as they occur in various landscape positions. Units 261 (Linkup-Roca-Vanwyper association), 241 (Cleavage-Cleavage, very cobbly-Loncan association), and 576 (Sumine-Cleavage-Hapgood association) are on mountains; unit 511 (Dacker-Gance-Kelk association) is on fan piedmont remnants and inset fans; unit 110 (Moranch-Ocala-Orovada association) is on fan skirts; and unit 440 (Devilsgait-Woofus-Devilsgait, gravelly substratum association) is on basin floors.

This survey area was mapped at two levels of detail. At the more detailed level, map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map unit boundaries were plotted and verified at wider intervals. The narrowly defined units are 60, 80, 184, 447, and 740. The detail of mapping was selected to meet the anticipated long-term use of the survey, and the map units were designed to meet the needs for that use.

Table 4 gives the acreage and proportionate extent of each map unit.

The following paragraphs explain some of the headings used in the map unit descriptions. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Map unit setting is given for the entire map unit. The landscape positions given under this heading generally are broader than those given for each major component.

Composition is given for the components identified in the name of the map unit as well as for the contrasting inclusions. Inclusions are soils or miscellaneous areas that differ from the soils or miscellaneous areas for which the unit is named. Inclusions can be either similar or contrasting. Similar inclusions are components that differ from the components for which the unit is named but that for purposes of use and management can be considered to be comparable to the named components. In the "Composition" section, a single percentage is provided for a named soil and the similar inclusions because their use and management are similar. Contrasting inclusions are components that differ so significantly from the components for which the unit is named that they would have different use and management if they were extensive enough to be managed separately. For most uses, contrasting inclusions have limited effect on use and management. Inclusions generally are in small areas, and they could not be mapped separately because of the scale used. Some small areas of strongly contrasting inclusions are identified by a special symbol on the detailed soil maps. A few inclusions may not have been observed and

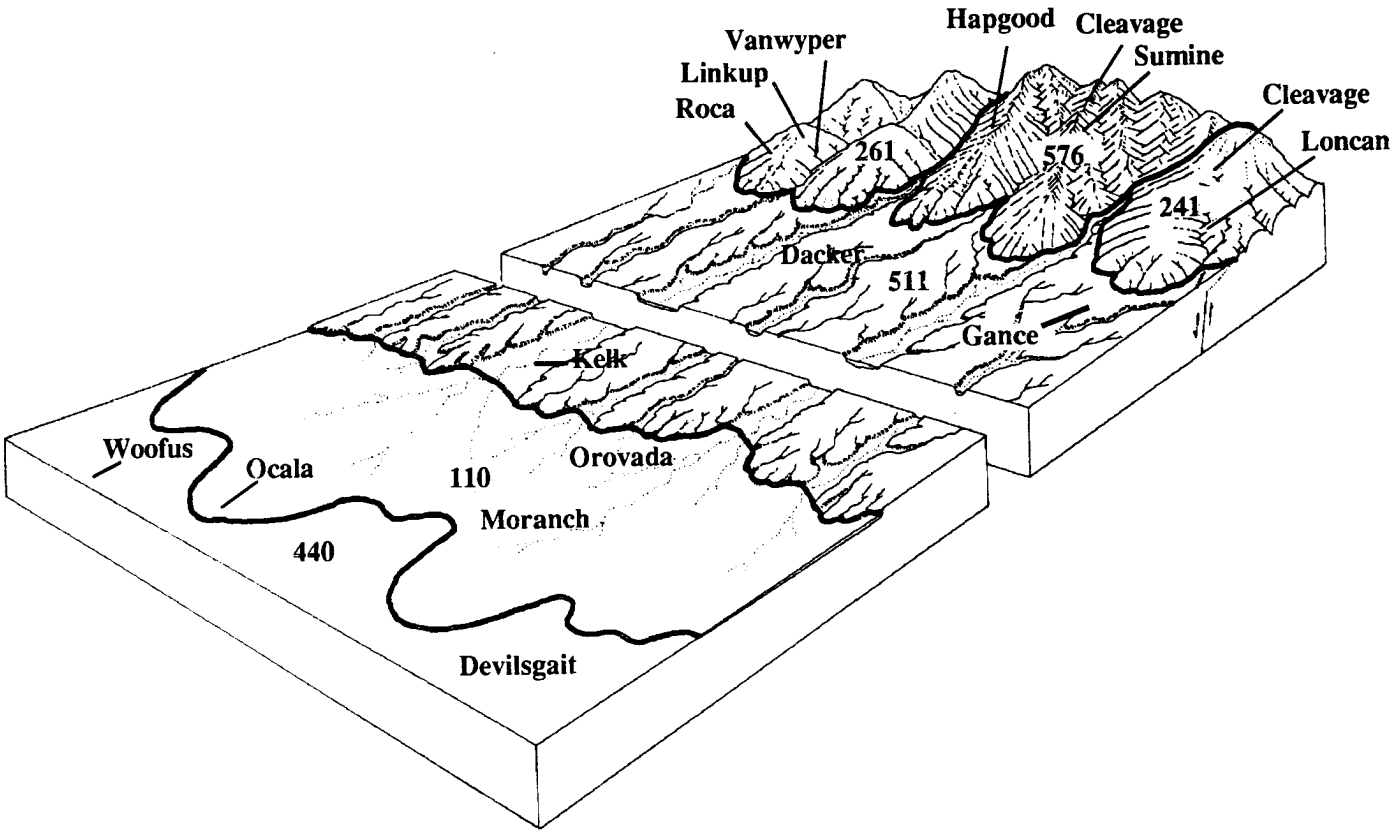

Figure 6.—The physiographic position of each major soil component in some detailed soil map units. Units 261 (Linkup-Roca-Vanwyper association), 241 (Cleavage-Cleavage, very cobbly-Loncan association), and 576 (Sumine-Cleavage-Hapgood association) are on mountains; unit 511 (Dacker-Gance-Kelk association) is on fan piedmont remnants and inset fans; unit 110 (Moranch-Ocala-Orovada association) is on fan skirts; and unit 440 (Devilsgait-Woofus-Devilsgait, gravelly substratum association) is on basin floors.

consequently are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the inclusions on the landscape.

A description of the characteristics of the soils in the map unit follows the description of composition. The major uses, ratings for various uses, and interpretive groups also are given. More information about the various uses and the interpretive groups is available under the heading "Use and Management of the Soils."

Map Unit Descriptions

010—Boulflat, cobbly-Boulflat-Humdun association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:

- Boulflat cobbly loam, 4 to 15 percent slopes (35 percent)
- Boulflat gravelly loam, 4 to 15 percent slopes (25 percent)
- Humdun loam, 15 to 30 percent slopes (25 percent)

Contrasting inclusions:

- Inclusion 1: Rock outcrop (6 percent)
- Inclusion 2: Enko fine sandy loam, 4 to 8 percent slopes (5 percent)
- Inclusion 3: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 4 to 15 percent slopes (4 percent)

Characteristics of the Cobbly Boulflat Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic

Position on landscape: Summits and slightly convex side slopes of hills

Parent material: Residuum derived from andesite and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 6 to 20 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 20 to 34 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 34 to 39 inches
Texture: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, very firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 34 inches
Depth to bedrock: 22 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.7 to 5.7 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Boulflat Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Summits and slightly convex side slopes of hills
Parent material: Residuum derived from andesite and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 6 to 20 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 20 to 34 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 34 to 39 inches
Texture: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, very firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 34 inches
Depth to bedrock: 22 to 40 inches
Depth to a seasonal high water table: More than 60 inches

Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.7 to 5.7 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Humdun Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: East-facing, concave side slopes of hills
Parent material: Loess over alluvium and residuum derived from andesite
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Wyoming big sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 29 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 10.1 to 11 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants adjacent to the lower side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Crests and convex side slopes of hills adjacent to areas of rock outcrop
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the cobbly Boulflat soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Boulflat soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Humdun soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cobbly Boulflat Soil for Various Uses and Practices

Range seeding: Fair—too arid, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Boulflat Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Humdun Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—slope
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Boulflat soils—6s, nonirrigated; Humdun soil—6e, nonirrigated
Range site: Both Boulflat soils—025X019N; Humdun soil—025X019N; Inclusion 1—none; Inclusion 2—025X019N; Inclusion 3—025X019N

011—Cherry Spring-Orovada-Yuko association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
• Cherry Spring silt loam, 2 to 8 percent slopes (35 percent)
• Orovada fine sandy loam, 4 to 15 percent slopes (30 percent)
• Yuko very gravelly coarse sandy loam, 30 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Rad silt loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Tuffo fine sandy loam, 30 to 75 percent slopes (5 percent)

Characteristics of the Cherry Spring Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 23 to 41 inches
Texture: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, very firm
Reaction: Moderately alkaline

Depth: 41 to 63 inches
Texture: Stratified sandy loam to extremely gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.7 to 4.6 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium

Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 30 to 50 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly coarse sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D

Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Cherry Spring soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Cherry Spring Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Orovada Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cherry Spring soil—3e, irrigated, 7s, nonirrigated; Orovada soil—4e, irrigated, 6c, nonirrigated; Yuko soil—7s, nonirrigated
Range site: Cherry Spring soil—025X019N; Orovada soil—025X019N; Yuko soil—025X015N; Inclusion 1—025X019; Inclusion 2—025X015N

021—Betra-McIvey-Heechee association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Betra cobbly loam, 2 to 8 percent slopes (40 percent)
• McIvey gravelly loam, 2 to 8 percent slopes (25 percent)
• Heechee cobbly loam, 4 to 15 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Vanwyper cobbly sandy loam, 15 to 50 percent slopes (3 percent)
- Inclusion 2: Kleckner gravelly loam, 2 to 8 percent slopes (3 percent)
- Inclusion 3: Alburz Variant loam, 2 to 4 percent slopes (2 percent)
- Inclusion 4: Welch silt loam, 0 to 4 percent slopes (2 percent)

Characteristics of the Betra Soil

Classification: Abruptic Aridic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Alluvium derived from granitic rocks and influenced by loess
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 9 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 9 to 21 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 21 to 42 inches
Texture: Cemented hardpan

Soil and Water Features

Depth to a hardpan: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex summits and shoulders of fan piedmont remnants
Parent material: Alluvium derived from mixed rocks
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable

Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Heechee Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Alluvium derived from mixed rocks
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 11 to 33 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 33 to 63 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.2 to 6.4 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Typic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Cottonwood, willow
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Mat muhly, alpine timothy
Other inclusions of minor extent
Location of one of the inclusions: Near Lee
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Distinctive present vegetation: Basin big sagebrush

Location of the other inclusion: Near Lee
Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Distinctive present vegetation: Mulesear wyethia, tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture

Potential foreseeable use: Cropland

Suitability of the Betra soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability of the McIvey soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good; wetland plants—very poor; shallow water areas—very poor

Suitability of the Heechee soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Betra Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Large stones, cemented pan

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones
Local roads and streets: Moderate—frost action, shrink-swell potential
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Large stones, percs slowly

Suitability and Limitations of the Heechee Soil for Various Uses and Practices

Range seeding: Fair—large stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Slope, large stones

Interpretive Groups

Capability classification: Betra soil—4e, irrigated, 7s, nonirrigated; McIvey soil—4e, irrigated, 6c, nonirrigated; Heechee soil—4s, irrigated, 7s, nonirrigated

Range site: Betra soil—025X017N; McIvey soil—025X012N; Heechee soil—025X007N; Inclusion 1—025X015N; Inclusion 2—025X014N; Inclusion 3—025X053N; Inclusion 4—025X006N

030—Gollaher-Cleavage-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:

- Gollaher very gravelly loam, 30 to 75 percent slopes (40 percent)
- Cleavage extremely gravelly loam, 30 to 75 percent slopes (30 percent)
- Hapgood very gravelly loam, 30 to 50 percent slopes (15 percent)

Contrasting inclusions:

- Inclusion 1: Gollaher very gravelly loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Bullump gravelly loam, 15 to 50 percent slopes (5 percent)
- Inclusion 3: Sumine very gravelly loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Gollaher Soil

Classification: Lithic Xerorthents, loamy-skeletal, carbonatic, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 75 percent
Elevation: 6,400 to 7,700 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 4 to 7 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 7 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 10 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: .36 to .67 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 75 percent
Elevation: 6,400 to 7,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: North-facing, concave side slopes of mountains
Parent material: Colluvium and residuum derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,400 to 7,700 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerorthents, loamy-skeletal, carbonatic, frigid
Position on landscape: Crests of mountains
Distinctive present vegetation: Black sagebrush, Thurber needlegrass

Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing, upper side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing, lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Gollaher soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Gollaher Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones, depth to rock
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gollaher soil—7s, nonirrigated; Cleavage soil—7s, nonirrigated; Hapgood soil—7s, nonirrigated
Range site: Gollaher soil—025X057N; Cleavage soil—025X024N; Hapgood soil—025X004N; Inclusion 1—025X057N; Inclusion 2—025X016N; Inclusion 3—025X009N

060—Kodra loam, 0 to 4 percent slopes

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major component:
• Kodra loam, 0 to 4 percent slopes (85 percent)
Contrasting inclusions:
• Inclusion 1: Chiara loam, 2 to 4 percent slopes (5 percent)
• Inclusion 2: Enko loam, 0 to 4 percent slopes (5 percent)
• Inclusion 3: Rad silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Kodra Soil

Classification: Haploxerollic Durorthids, coarse-loamy, mixed, mesic
Position on landscape: Smooth or slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 4 percent
Elevation: 5,700 to 5,800 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 95 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 4 to 22 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 22 to 44 inches
Texture: Cemented hardpan
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 44 to 60 inches
Texture: Stratified sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 30 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.4 to 4.3 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Kodra soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Kodra Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, small stones, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Kodra soil—3e, irrigated, 6s, nonirrigated
Range site: Kodra soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

070—Tenvorrd-Kodra association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Tenvorrd silt loam, 4 to 15 percent slopes (45 percent)
• Kodra loam, 2 to 8 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 2 to 15 percent slopes (8 percent)
• Inclusion 2: Chiara loam, 15 to 30 percent slopes (7 percent)

Characteristics of the Tenvorrd Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 20 to 28 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.5 to 2.9 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate

Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kodra Soil

Classification: Haploxerollic Durorthids, coarse-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 95 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 4 to 22 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 22 to 44 inches
Texture: Cemented hardpan

Depth: 44 to 60 inches
Texture: Stratified sand to silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 30 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.4 to 4.3 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnant side slopes and inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Tenvorrd soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kodra soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Tenvorrd Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty, cemented pan
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Kodra Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, small stones, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Tenvorrd soil—4e, irrigated, 7s, nonirrigated; Kodra soil—3e, irrigated, 6s, nonirrigated
Range site: Tenvorrd soil—025X019N; Kodra soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

080—Loncan Variant loam, 0 to 2 percent slopes

Map Unit Setting

Position on landscape: Inset fans, fan skirts

Composition

Major component:
• Loncan Variant loam, 0 to 2 percent slopes (90 percent)
Contrasting inclusions:
• Inclusion 1: Enko loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Kelk silt loam, 0 to 4 percent slopes (5 percent)

Characteristics of the Loncan Variant Soil

Classification: Aridic Duric Haploxerolls, fine-loamy, mixed, mesic
Position on landscape: Inset fans and fan skirts
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 12 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 12 to 38 inches
Texture: Stratified loam to clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 38 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 9.6 to 11 inches
Water-supplying capacity: 8 to 14 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Alluvial plains
Distinctive present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Loncan Variant soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Loncan Variant Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Loncan Variant soil—3c, irrigated, 6c, nonirrigated
Range site: Loncan Variant soil—025X003N; Inclusion 1—025X019N; Inclusion 2—024X006N

110—Moranch-Ocala-Orovada association

Map Unit Setting

Position on landscape: Fan skirts

Composition

Major components:
• Moranch silt loam, 0 to 2 percent slopes (35 percent)
• Ocala silt loam, slightly saline, 0 to 2 percent slopes (30 percent)
• Orovada loam, 2 to 4 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Connel sandy loam, 0 to 4 percent slopes (5 percent)
• Inclusion 2: Bloor silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Devilsgait silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 4: Sonoma silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Moranch Soil

Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Position on landscape: Upper part of fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,900 to 5,300 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 13

Depth: 5 to 20 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm
Sodicity (SAR): 0 to 13

Depth: 20 to 61 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm
Sodicity (SAR): 0 to 13

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 10.5 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.64; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate

Potential for frost action: Low

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Lower part of fan skirts
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 4,900 to 5,300 feet
Dominant present vegetation: Black greasewood, alkali sacaton, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8.0 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Upper parts of fan skirts adjacent to toe slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 4,900 to 5,300 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low

Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Upper parts of fan skirts adjacent to fan drainageways
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Alluvial flats adjacent to toe slopes of fan skirts
Distinctive present vegetation: Black greasewood, basin wildrye
Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan skirts
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Moranch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor

Suitability and Limitations of the Moranch Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily, excess salts
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Orovada Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Slope, erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Moranch soil—3s, irrigated, 7s, nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated; Orovada soil—2e, irrigated, 6c, nonirrigated

Range site: Moranch soil—024X008N; Ocala soil—024X007N; Orovada soil—025X019N; Inclusion 1—025X019N; Inclusion 2—024X007N; Inclusion 3—025X003N; Inclusion 4—024X006N

121—Pernog-Rock outcrop association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Pernog very stony loam, 15 to 50 percent slopes (45 percent)
- Rock outcrop (45 percent)

Contrasting inclusions:
- Inclusion 1: Eboda gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Hackwood loam, 15 to 30 percent slopes (1 percent)
- Inclusion 3: Akler very cobbly loam, 15 to 30 percent slopes (3 percent)
- Inclusion 4: Lithic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes (1 percent)

Characteristics of the Pernog Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Summits and convex side slopes of mountains
Parent material: Residuum and colluvium derived from quartzite
Slope range: 15 to 50 percent
Elevation: 6,800 to 8,000 feet
Dominant present vegetation: Curlleaf mountainmahogany, snowberry

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Percent stones and boulders on the surface: 1

Depth: 0 to 10 inches
Texture: Very stony loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 17 inches
Texture: Very stony clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 10 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of mountains
Elevation: 6,800 to 8,000 feet
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Lower, north-facing, concave side slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, north-facing, concave side slopes of mountains
Distinctive present vegetation: Mountain brome, quaking aspen

Inclusion 3
Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Lower, convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Inclusion 4
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Curlleaf mountainmahogany

Major Uses

Current uses: Livestock grazing, wildlife habitat

Suitability of the Pernog soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Pernog Soil for Various Uses and Practices

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Pernog soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Pernog soil—028B042N; Rock outcrop—none; Inclusion 1—025X027N; Inclusion 2—025X065N; Inclusion 3—025X018N; Inclusion 4—028B043N

131—Zevadez-Puett-Puett, steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Zevadez fine sandy loam, 4 to 15 percent slopes (50 percent)
• Puett sandy loam, 15 to 30 percent slopes (20 percent)
• Puett gravelly sandy loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Chiara silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Orovada loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow

Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff, tuffaceous sandstone, and siltstone
Slope range: 15 to 30 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Wyoming big sagebrush, black sagebrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 30 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Steep Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff, tuffaceous sandstone, and siltstone
Slope range: 30 to 50 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Wyoming big sagebrush, black sagebrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the steep Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, slope
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, rooting depth
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Steep Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Zevadez soil—4e, irrigated, 6c, nonirrigated; both Puett soils—7e, nonirrigated
Range site: Zevadez soil—025X019N; both Puett soils—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

132—Zevadez-Soughe-Hunewill association

Map Unit Setting

Position on landscape: Fan piedmont remnants and hills

Composition

Major components:
• Zevadez gravelly loam, 4 to 15 percent slopes (45 percent)
• Soughe very cobbly loam, 30 to 50 percent slopes, eroded (25 percent)
• Hunewill gravelly sandy loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Enko sandy loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Grina very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Samor very gravelly loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent

Elevation: 6,000 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Hills and side slopes of fan piedmont remnants with a rock core
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,000 to 6,600 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.8 inch to 1.2 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium

Slope range: 15 to 30 percent
Elevation: 6,000 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.6 to 4.5 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 3
Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Zevadez soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Hunewill soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, slope
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Soughe Soil for Woodland
Site index for common trees: Utah juniper—30
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Soughe Soil for Various Uses and Practices
Range seeding: Poor—droughty, too arid, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Zevadez soil—6c, nonirrigated; Soughe soil—7s, nonirrigated; Hunewill soil—6e, nonirrigated
Range site: Zevadez soil—025X019N; Soughe soil—025X059N; Hunewill soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X059N; Inclusion 3—025X059N

133—Zevadez-Wieland-Dewar association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Zevadez gravelly loam, 4 to 15 percent slopes (35 percent)
• Wieland gravelly loam, 15 to 30 percent slopes (30 percent)
• Dewar gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Gance very gravelly loam, 30 to 50 percent slopes (10 percent)
• Inclusion 2: Alburz very gravelly loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silty loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Dewar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid, erodes easily
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dewar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—cemented pan, slope
Shallow excavations: Severe—cemented pan, slope
Local roads and streets: Severe—cemented pan, slope
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Zevadez soil—4e, irrigated, 6c, nonirrigated; Wieland soil—6e, nonirrigated; Dewar soil—7e, nonirrigated
Range site: Zevadez soil—025X019N; Wieland soil—025X019N; Dewar soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X003N

134—Zevadez-Humdun-Vanwyper association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
• Zevadez gravelly loam, 15 to 30 percent slopes (40 percent)
• Humdun loam, 15 to 30 percent slopes (30 percent)
• Vanwyper very cobbly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Gochea silt loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Cleavage extremely gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (1 percent)
• Inclusion 4: Rubble land (1 percent)

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic

Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, basin wildrye, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Humdun Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: North- and east-facing side slopes of fan piedmont remnants
Parent material: Loess over alluvium and residuum derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, basin wildrye, cheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 29 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 10 to 11.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low

Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 8 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: North- and east-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper side slopes of hills
Distinctive present vegetation: Low sagebrush, black sagebrush
Inclusion 3
Position on landscape: Crests and upper side slopes of hills
Distinctive present vegetation: None
Inclusion 4
Position on landscape: Lower side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Zevadez soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Humdun soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices

Range seeding: Fair—too arid, erodes easily
Roadfill: Fair—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Humdun Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope

Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, low strength, large stones
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Zevadez soil—6e, nonirrigated; Humdun soil—6e, nonirrigated; Vanwyper soil—7s, nonirrigated
Range site: Zevadez soil—025X019N; Humdun soil—025X019N; Vanwyper soil—025X015N; Inclusion 1—025X014N; Inclusion 2—025X024N; Inclusion 3—none; Inclusion 4—none

135—Zevadez-Enko-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Zevadez gravelly loam, 15 to 30 percent slopes (35 percent)
• Enko gravelly sandy loam, 15 to 30 percent slopes (30 percent)
• Puett gravelly sandy loam, 15 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Wieland gravelly silt loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Grina very gravelly sandy loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (5 percent)

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate

Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,200,to 6,400 feet
Dominant present vegetation: Wyoming big sagebrush, Indian ricegrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight

Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits and shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 3
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Zevadez soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Enko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Fair—too arid, erodes easily
Roadfill: Fair—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Zevadez soil—6e, nonirrigated; Enko soil—6e, nonirrigated; Puett soil—7e, nonirrigated
Range site: Zevadez soil—025X019N; Enko soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X059N; Inclusion 3—none

141—Kelk-Kelk, occasionally flooded-Enko association

Map Unit Setting

Position on landscape: Inset fans, fan skirts

Composition

Major components:
• Kelk silt loam, 0 to 2 percent slopes (60 percent)
• Kelk silt loam, 0 to 2 percent slopes, occasionally flooded (15 percent)
• Enko fine sandy loam, 2 to 4 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Bloor silt loam, 0 to 2 percent slopes, rarely flooded (3 percent)
• Inclusion 2: Wieland very gravelly loam, 2 to 4 percent slopes (3 percent)
• Inclusion 3: Torriorthentic Haploxerolls, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes (4 percent)

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans

Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Occasionally Flooded Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans adjacent to stream channels
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,600 feet
Dominant present vegetation: Big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,100 to 5,600 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Alkali sacaton, basin wildrye
Inclusion 2
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Lower side slopes of fan piedmont remnants adjacent to inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Torriorthentic Haploxerolls, loamy-skeletal, mixed, mesic
Position on landscape: Inset fans adjacent to stream channels
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the occasionally flooded Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts

Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Occasionally Flooded Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Capability classification: Kelk soil—2s, irrigated, 6s, nonirrigated; the occasionally flooded Kelk soil—2w, irrigated, 6w, nonirrigated; Enko soil—2e, irrigated, 6s, nonirrigated
Range site: Kelk soil—025X019N; the occasionally flooded Kelk soil—024X006N; Enko soil—025X019N; Inclusion 1—024X007N; Inclusion 2—025X019N; Inclusion 3—024X006N

142—Kelk-Dacker-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Kelk silt loam, 2 to 8 percent slopes (45 percent)
- Dacker silt loam, 2 to 4 percent slopes (25 percent)
- Puett gravelly sandy loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Zevadez gravelly loam, 8 to 30 percent slopes (5 percent)
- Inclusion 2: Chiara silt loam, 2 to 4 percent slopes (5 percent)
- Inclusion 3: Orovada fine sandy loam, 4 to 15 percent slopes (4 percent)
- Inclusion 4: Kelk silt loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable

Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4 to 6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Dacker Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Kelk soil—3e, irrigated, 6s, nonirrigated; Dacker soil—3e, irrigated, 6s, nonirrigated; Puett soil—7e, nonirrigated
Range site: Kelk soil—025X019N; Dacker soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—024X006N

145—Kelk-Ocala-Moranch association

Map Unit Setting

Position on landscape: Fan skirts and alluvial flats

Composition

Major components:
• Kelk silt loam, 0 to 2 percent slopes (35 percent)
• Ocala silt loam, 0 to 2 percent slopes (30 percent)
• Moranch silt loam, 0 to 2 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Tweba sandy loam, saline-alkali, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Ocala silt loam, strongly saline-sodic, 0 to 2 percent slopes (5 percent)

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Lower part of fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Moranch Soil

Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Position on landscape: Upper part of fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Black greasewood, spiny hopsage, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 13

Depth: 5 to 20 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm
Sodicity (SAR): 0 to 13

Depth: 20 to 61 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm
Sodicity (SAR): 0 to 13

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 10.5 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.64; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Flood plains along streams
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats

Distinctive present vegetation: Black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Moranch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Poor—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—too crusty, excess salts
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Moranch Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily, excess salts
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Capability classification: Kelk soil—2w, irrigated, 6w, nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated; Moranch soil—3s, irrigated, 7s, nonirrigated
Range site: Kelk soil—024X006N; Ocala soil—024X007N; Moranch soil—024X008N; Inclusion 1—024X007N; Inclusion 2—024X008N

146—Kelk-Bloor-Ocala association

Map Unit Setting

Position on landscape: Fan skirts, alluvial flats, flood plains

Composition

Major components:
- Kelk silt loam, 0 to 2 percent slopes (40 percent)
- Bloor silt loam, 0 to 2 percent slopes (30 percent)
- Ocala silty clay loam, 0 to 2 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Aeric Halaquepts, fine, montmorillonitic, mesic, ponded, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Ocala silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Lower fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet

Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 7 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bloor Soil

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by loess
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass, alkali sacaton

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 8 to 20 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 42 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 42 to 60 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Very strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 60 to 72 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 4.7 to 7.3 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass, alkali sacaton

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine, montmorillonitic, mesic
Position on landscape: Concave areas on the flood plains
Distinctive present vegetation: Inland saltgrass, rush

Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable use: Pasture
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Bloor soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Poor—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Bloor Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium

Roadfill: Good
Topsoil: Poor—excess salts
Daily cover for landfill: Good
Shallow excavations: Moderate—wetness
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Kelk soil—2w, irrigated, 6w, nonirrigated; Bloor soil—6s, irrigated, 7s, nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated
Range site: Kelk soil—024X006N; Bloor soil—024X007N; Ocala soil—024X007N; Inclusion 1—026X002N; Inclusion 2—024X008N

149—Kelk-Sonoma association

Map Unit Setting

Position on landscape: Fan skirts and alluvial flats

Composition

Major components:
- Kelk silt loam, 0 to 2 percent slopes (70 percent)
- Sonoma silt loam, 0 to 2 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Kelk silt loam, 2 to 4 percent slopes (4 percent)
- Inclusion 2: Ocala silt loam, slightly saline, 0 to 2 percent slopes (4 percent)
- Inclusion 3: Devilsgait silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Lower part of fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Upper part of fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Distinctive present vegetation: Alkali sacaton, inland saltgrass

Inclusion 3

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey

Shallow excavations: Slight
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Kelk soil—2s, irrigated, 6s, nonirrigated; Sonoma soil—2w, irrigated, 7w, nonirrigated
Range site: Kelk soil—024X006N; Sonoma soil—025X003N; Inclusion 1—025X019N; Inclusion 2—024X007N; Inclusion 3—025X003N

151—Dewar-Gance-Wieland association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Dewar gravelly silt loam, 2 to 8 percent slopes (60 percent)
• Gance very cobbly loam, 15 to 30 percent slopes (15 percent)
• Wieland very gravelly loam, 8 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Cherry Spring silt loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Linkup gravelly loam, 8 to 15 percent slopes (3 percent)
• Inclusion 3: Puett gravelly sandy loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth or slightly convex summits of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,900 to 6,400 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent

Elevation: 5,500 to 6,400 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 30
Percent pebbles on the surface: 30

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 5,500 to 6,400 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Foot slopes of the side slopes of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture
Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Dewar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Dewar soil—4e, irrigated, 7s, nonirrigated; Gance soil—7s, nonirrigated; Wieland soil—6s, nonirrigated
Range site:; Dewar soil—025X019N; Gance soil—025X019N; Wieland soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X018N; Inclusion 3—025X025N

152—Dewar-Zevadez-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Dewar gravelly silt loam, 2 to 8 percent slopes (45 percent)
• Zevadez gravelly loam, 15 to 30 percent slopes (20 percent)
• Puett gravelly sandy loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hunewill gravelly sandy loam, 8 to 15

percent slopes (7 percent)
• Inclusion 2: Orovada fine sandy loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Yuko very gravelly sandy loam, 4 to 15 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 30 to 50 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Black sagebrush, big sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 4
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Dewar Soil for Various Uses and Practices

Range seeding: Poor—droughty, too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—cemented pan
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices

Range seeding: Fair—too arid, erodes easily
Roadfill: Fair—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Capability classification: Dewar soil—4e, irrigated, 7s, nonirrigated; Zevadez soil—6e, nonirrigated; Puett soil—7e, nonirrigated
Range site: Dewar soil—025X019N; Zevadez soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—none

153—Dewar-Gance-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Dewar gravelly loam, 2 to 8 percent slopes (45 percent)
- Gance very gravelly loam, 8 to 15 percent slopes (30 percent)
- Bilbo very gravelly loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Chiara silt loam, 2 to 8 percent slopes (5 percent)
- Inclusion 2: McIvey gravelly silt loam, 30 to 50 percent slopes (2 percent)
- Inclusion 3: Orovada loam, 4 to 30 percent slopes (2 percent)
- Inclusion 4: Welch silt loam, 2 to 15 percent slopes (1 percent)

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, phlox, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans and foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Dewar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, shrink-swell potential, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Dewar soil—4e, irrigated, 7s, nonirrigated; Gance soil—7s, nonirrigated; Bilbo soil—7s, nonirrigated
Range site: Dewar soil—025X019N; Gance soil—025X019N; Bilbo soil—025X015N; Inclusion 1—025X019N; Inclusion 2—025X012N; Inclusion 3—025X019N; Inclusion 4—025X003N

154—Dewar-Chiara-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Dewar gravelly silt loam, 2 to 4 percent slopes (40 percent)
• Chiara silt loam, 2 to 4 percent slopes (25 percent)
• Gance very gravelly loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hunnton gravelly loam, 0 to 4 percent slopes (8 percent)
• Inclusion 2: Chiara silt loam, 4 to 15 percent slopes (3 percent)
• Inclusion 3: Bilbo loam, 2 to 8 percent slopes (2 percent)
• Inclusion 4: Kelk silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth, upper parts of the summits of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Upper parts of the convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 4 percent

Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Smooth, lower parts of the summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 5,900 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow

Position on landscape: Side slopes of fan piedmont remnants

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic

Position on landscape: Inset fan remnants

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic

Position on landscape: Inset fans

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Cropland, hayland, pasture

Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Dewar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty

Roadfill: Poor—cemented pan

Topsoil: Poor—cemented pan, small stones

Daily cover for landfill: Poor—cemented pan

Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—cemented pan

Pond reservoir areas: Severe—cemented pan

Embankments, dikes, and levees: Severe—piping

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Drainage: Deep to water

Irrigation: Cemented pan, slope, erodes easily

Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty

Roadfill: Poor—cemented pan

Topsoil: Poor—cemented pan

Daily cover for landfill: Poor—cemented pan

Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—cemented pan

Pond reservoir areas: Severe—cemented pan

Embankments, dikes, and levees: Severe—piping

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Drainage: Deep to water

Irrigation: Cemented pan, slope

Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Gance Soil for Various Uses and Practices

Range seeding: Poor—small stones

Roadfill: Fair—large stones

Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—seepage, small stones

Shallow excavations: Moderate—too clayey, large stones

Local roads and streets: Moderate—shrink-swell potential, large stones

Pond reservoir areas: Moderate—seepage, slope

Embankments, dikes, and levees: Severe—seepage, large stones

Sand: Improbable source—small stones

Gravel: Probable source

Interpretive Groups

Capability classification: Dewar soil—4e, irrigated, 7s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Gance soil—7s, nonirrigated

Range site: Dewar soil—025X019N; Chiara soil—025X019N; Gance soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

161—Sonoma-Sonoma, rarely flooded association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:

- Sonoma silt loam, 0 to 2 percent slopes (60 percent)
- Sonoma silt loam, 0 to 2 percent slopes, rarely flooded (25 percent)

Contrasting inclusions:
- Inclusion 1: Sonoma silt loam, 0 to 2 percent slopes, occasionally flooded (10 percent)
- Inclusion 2: Hussa silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Basin big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Rarely Flooded Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains near entrenched stream channels
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Basin big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Black greasewood, western wheatgrass

Inclusion 2

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, cropland, pasture
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good
Suitability of the rarely flooded Sonoma soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Suitability and Limitations of the Rarely Flooded Sonoma Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Severe—low strength, frost action,
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Both Sonoma soils—2w, irrigated, 7w, nonirrigated
Range site: Both Sonoma soils—025X003N; Inclusion 1—024X006N; Inclusion 2—025X003N

162—Sonoma-Hussa association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Sonoma silt loam, 0 to 2 percent slopes (50 percent)
• Hussa silt loam, 0 to 2 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Welsum silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Devilsgait silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Crooked Creek silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Ocala silt loam, 0 to 2 percent slopes, occasionally flooded (2 percent)

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Hussa Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Tufted hairgrass, dandelion, sedge

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 16 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 60 inches
Texture: Stratified sandy clay loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 6 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Natural levees on the flood plains
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Slightly lower areas of the flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Wildrye, inland saltgrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass

Inclusion 4
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, pasture, hayland

Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability of the Hussa soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices

Range seeding: Fair—too crusty, excess salts
Roadfill: Poor—low strength
Topsoil: Fair—excess salts
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Hussa Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength, wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Sonoma and Hussa soils—3w, irrigated, 6w, nonirrigated
Range site: Sonoma soil—024X006N; Hussa soil—025X005N; Inclusion 1—025X005N; Inclusion 2—025X001N; Inclusion 3—025X005N; Inclusion 4—024X008N

163—Sonoma, frequently flooded-Devilsgait-Sonoma association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
- Sonoma silty clay loam, 0 to 2 percent slopes, frequently flooded (40 percent)
- Devilsgait silt loam, 0 to 2 percent slopes (30 percent)
- Sonoma silt loam, 0 to 2 percent slopes, occasionally flooded (20 percent)

Contrasting inclusions:
- Inclusion 1: Sonoma silt loam, 0 to 2 percent slopes, rarely flooded (5 percent)
- Inclusion 2: Devilsgait silty clay, ponded, 0 to 2 percent slopes (4 percent)
- Inclusion 3: Halleck silt loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Frequently Flooded Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Alkali sacaton, basin wildrye, alkali bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 8

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequency—frequent; duration—brief to long; months—February through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Basin wildrye, creeping wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches

Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Ponded areas of flood plains
Distinctive present vegetation: Basin wildrye, sedge
Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Slightly elevated areas of flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the frequently flooded Sonoma soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Frequently Flooded Sonoma Soil for Various Uses and Practices
Range seeding: Poor—too crusty, excess salts, excess sodium
Roadfill: Poor—low strength
Topsoil: Fair—too clayey, excess salts
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices
Range seeding: Fair—excess salts, too crusty
Roadfill: Poor—low strength
Topsoil: Fair—excess salts
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Both Sonoma soils—3w,

irrigated, 6w, nonirrigated; Devilsgait soil—5w, irrigated, 6w, nonirrigated
Range site: The frequently flooded Sonoma soil—024X009N; Devilsgait soil—025X001N; Sonoma soil—024X006N; Inclusion 1—024X007N; Inclusion 2—025X001N; Inclusion 3—025X005N

166—Sonoma-Devilsgait association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Sonoma silt loam, 0 to 2 percent slopes, occasionally flooded (50 percent)
• Devilsgait silt loam, 0 to 2 percent slopes, frequently flooded (35 percent)
Contrasting inclusions:
• Inclusion 1: Devilsgait silt loam, 0 to 2 percent slopes, occasionally flooded (10 percent)
• Inclusion 2: Sonoma silt loam, 0 to 2 percent slopes, rarely flooded (3 percent)
• Inclusion 3: Tweba very fine sandy loam, drained, 0 to 2 percent slopes (2 percent)

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye, alkali bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,400 feet
Dominant present vegetation: Wildrye, sedge, inland saltgrass, Nevada bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam

Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, inland saltgrass
Inclusion 3
Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Slightly higher areas of flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices
Range seeding: Fair—excess salts, too crusty
Roadfill: Poor—low strength
Topsoil: Fair—excess salts
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Sonoma soil—3w, irrigated, 6w, nonirrigated; Devilsgait soil—5w, irrigated, 6w, nonirrigated
Range site: Sonoma soil—024X006N; Devilsgait soil—025X001N; Inclusion 1—025X003N; Inclusion 2—024X007N; Inclusion 3—025X003N

167—Sonoma-Kelk association

Map Unit Setting

Position on landscape: Flood plains and fan skirts

Composition

Major components:
- Sonoma silt loam, 0 to 2 percent slopes (55 percent)
- Kelk silt loam, 0 to 2 percent slopes (35 percent)

Contrasting inclusions:
- Inclusion 1: Ocala silt loam, 0 to 2 percent slopes (8 percent)
- Inclusion 2: Devilsgait silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Dominant present vegetation: Basin big sagebrush, Douglas rabbitbrush, basin wildrye, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6

Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, inland saltgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Sonoma soil—2w, irrigated, 7w, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated
Range site: Sonoma soil—025X003N; Kelk soil—024X006N; Inclusion 1—024X007N; Inclusion 2—025X003N

171—Hussa-Ocala-Welsum association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Hussa silt loam, 0 to 2 percent slopes (40 percent)
• Ocala silt loam, 0 to 2 percent slopes (30 percent)
• Welsum silt loam, 0 to 2 percent slopes, frequently flooded (15 percent)
Contrasting inclusions:
• Inclusion 1: Ocala silt loam, 0 to 2 percent slopes, rarely flooded (10 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Hussa Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Rubber rabbitbrush, inland saltgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 4 to 60 inches
Texture: Stratified loam to clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 6 to 18 inches
Flooding: Frequency—occasional; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.1 to 11 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Rubber rabbitbrush, alkali sacaton, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Welsum Soil

Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Willow, rush, iris, sedge

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, friable

Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 20 to 35 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 35 to 61 inches
Texture: Extremely cobbly loamy sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through May
Permeability: Moderately slow
Available water capacity: 7.4 to 8.6 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats adjacent to fan skirts
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Hussa soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—good
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Welsum soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Hussa Soil for Various Uses and Practices
Range seeding: Fair—excess salts
Roadfill: Poor—wetness, frost action
Topsoil: Poor—wetness, excess sodium
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—flooding, wetness
Local roads and streets: Severe—flooding, wetness, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly, excess sodium
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—too crusty, excess salts
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Welsum Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—area reclaim, wetness

Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, large stones, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Large stones, erodes easily, wetness

Interpretive Groups

Capability classification: Hussa soil—4w, irrigated, 6w, nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated; Welsum soil—5w, irrigated, 6w, nonirrigated
Range site: Hussa soil—024X007N; Ocala soil—024X007N; Welsum soil—025X005N; Inclusion 1—024X007N; Inclusion 2—025X003N

172—Hussa-Halleck-Welsum association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Hussa silt loam, 0 to 2 percent slopes (35 percent)
• Halleck silt loam, 0 to 2 percent slopes (30 percent)
• Welsum silt loam, 0 to 2 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Fluvaquentic Haploxerolls, sandy-skeletal, mixed, frigid, 0 to 2 percent slopes (6 percent)
• Inclusion 2: Sonoma silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Alburz Variant loam, 0 to 2 percent slopes (4 percent)

Characteristics of the Hussa Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Slightly higher areas of flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Willow, mountain silver sagebrush, Nevada bluegrass, tufted hairgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 16 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 60 inches
Texture: Stratified sandy clay loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 6 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Halleck Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Slightly lower areas of flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Willow, mountain silver sagebrush, Nevada bluegrass, tufted hairgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Welsum Soil

Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Areas of flood plains near stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Willow, Nevada bluegrass, tufted hairgrass, mountain silver sagebrush

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 20 to 35 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 35 to 61 inches
Texture: Extremely cobbly loamy sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 7.4 to 8.6 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haploxerolls, sandy-skeletal, mixed, frigid
Position on landscape: Stream terraces
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 3
Classification: Typic Haplaquolls, sandy-skeletal, mixed, frigid

Position on landscape: Natural levees on the flood plains adjacent to stream channels
Distinctive present vegetation: Cottonwood

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Hussa soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair
Suitability of the Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good
Suitability of the Welsum soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Hussa Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength, wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Halleck Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Welsum Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—area reclaim, wetness
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, large stones, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Large stones, erodes easily, wetness

Interpretive Groups

Capability classification: Hussa soil—3w, irrigated, 6w, nonirrigated; Halleck soil—5w irrigated and nonirrigated; Welsum soil—5w, irrigated, 6w, nonirrigated
Range site: Hussa soil—025X005N; Halleck soil—025X005N; Welsum soil—025X005N; Inclusion 1—025X014N; Inclusion 2—024X007N; Inclusion 3—025X053N

181—Crooked Creek-Crooked Creek, gravelly substratum-Ocala association

Map Unit Setting

Position on landscape: Flood plains and alluvial flats

Composition

Major components:
• Crooked Creek silty clay loam, 0 to 2 percent slopes (45 percent)
• Crooked Creek silty clay loam, gravelly substratum, 0 to 2 percent slopes (30 percent)
• Ocala silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch silty clay loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Devilsgait very fine sandy loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Willow, rush, bluestem, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.2 to 7.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Crooked Creek Soil, Gravelly Substratum

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Willow, rush, bluestem, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 40 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 40 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly sand
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.7 to 8.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Rubber rabbitbrush, black greasewood, alkali sacaton, saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good
Suitability of the Crooked Creek soil, gravelly substratum, for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly

Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Crooked Creek Soil, Gravelly Substratum, for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Probable source
Gravel: Probable source
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—too crusty, excess salts
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Both Crooked Creek soils—5w, irrigated and nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated
Range site: Both Crooked Creek soils—025X005N; Ocala soil—024X007N; Inclusion 1—025X005N; Inclusion 2—025X001N

182—Crooked Creek-Hussa-Alburz association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
- Crooked Creek silty clay loam, 0 to 2 percent slopes (35 percent)
- Hussa loam, 0 to 2 percent slopes (30 percent)
- Alburz loam, drained, 0 to 2 percent slopes, rarely flooded (20 percent)

Contrasting inclusions:
- Inclusion 1: Crooked Creek silty clay loam, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Hussa silt loam, 0 to 2 percent slopes (5 percent)
- Inclusion 3: Hussa loam, 0 to 2 percent slopes, rarely flooded (5 percent)

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 6.8 to 7.4 inches
Water-supplying capacity: 8 to 12 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Hussa Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: The entrenched part of flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 16 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 60 inches
Texture: Stratified fine sandy loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 9.4 to 11 inches
Water-supplying capacity: 8 to 12 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Alburz Soil

Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Natural levees on the flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 20 inches
Texture: Stratified gravelly coarse sandy loam to gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 20 to 60 inches
Texture: Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Moderately rapid
Available water capacity: 2.8 to 4.2 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Very slow
Hydrologic group: B

Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Slightly lower areas of flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Slightly higher areas of flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass
Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor
Suitability of the Hussa soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Alburz soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell potential
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Hussa Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Suitability and Limitations of the Alburz Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, rooting depth, erodes easily
Terraces and diversions: Large stones, erodes easily, too sandy

Interpretive Groups

Capability classification: Crooked Creek soil—3w, irrigated, 6w, nonirrigated; Hussa soil—3w, irrigated, 6w, nonirrigated; Alburz soil—4s, irrigated, 7c, nonirrigated
Range site: Crooked Creek soil—025X003N; Hussa soil—025X003N; Alburz soil—025X003N;

Inclusion 1—025X005N; Inclusion 2—025X005N; Inclusion 3—024X006N

183—Crooked Creek-Welsum association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Crooked Creek silty clay loam, 0 to 2 percent slopes (50 percent)
• Welsum silt loam, 0 to 2 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Hussa silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Welch silty clay loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, alpine timothy

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.2 to 7.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Welsum Soil

Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Natural levees on flood plains adjacent to stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, alpine timothy

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 20 to 35 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 35 to 61 inches
Texture: Extremely cobbly loamy sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through May
Permeability: Moderately slow
Available water capacity: 7.4 to 8.6 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Tufted hairgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good
Suitability of the Welsum soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Welsum Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—area reclaim, wetness
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, large stones, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Large stones, erodes easily, wetness

Interpretive Groups

Capability classification: Crooked Creek soil—5w irrigated and nonirrigated; Welsum soil—5w, irrigated, 6w, nonirrigated
Range site: Crooked Creek soil—025X005N; Welsum soil—025X005N; Inclusion 1—025X005N; Inclusion 2—025X005N

184—Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

Position on landscape: Flood plains

Composition

Major component:
• Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (90 percent)
Contrasting inclusions:
• Inclusion 1: Welch silty clay loam, 0 to 2 percent slopes (7 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Meadow barley, Nevada bluegrass, tufted hairgrass, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.2 to 7.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Interpretive Groups

Capability classification: Crooked Creek soil—5w irrigated and nonirrigated
Range site: Crooked Creek soil—025X005N; Inclusion 1—025X005N; Inclusion 2—025X003N

187—Crooked Creek-Devilsgait-Ocala association

Map Unit Setting

Position on landscape: Flood plains and alluvial flats

Composition

Major components:
- Crooked Creek silty clay loam, 0 to 2 percent slopes (35 percent)
- Devilsgait silt loam, 0 to 2 percent slopes (30 percent)
- Ocala silt loam, 0 to 2 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Ocala silt loam, 0 to 2 percent slopes, nonflooded (5 percent)
- Inclusion 2: Welch silt loam, 0 to 2 percent slopes, rarely flooded (4 percent)
- Inclusion 3: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 0 to 2 percent slopes (3 percent)
- Inclusion 4: Welch silt loam, 0 to 2 percent slopes, occasionally flooded (3 percent)

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,300 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, alpine timothy, willow

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 40 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 40 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly sand
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.7 to 8.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous) mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,300 feet
Dominant present vegetation: Basin wildrye, creeping wildrye, inland saltgrass, alkali sacaton, willow

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June

Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,300 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, inland saltgrass, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: More than 4 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 8 to 12 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: The entrenched part of flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush
Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Black greasewood, inland saltgrass, basin wildrye
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Slightly higher areas of flood plains adjacent to stream channels
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—fair

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Probable source
Gravel: Probable source
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium, too crusty
Roadfill: Poor—low strength
Topsoil: Poor—excess salts, excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess sodium, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, excess sodium
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Crooked Creek soil—5w irrigated and nonirrigated; Devilsgait soil—5w, irrigated, 6w, nonirrigated; Ocala soil—6w, irrigated, 7w, nonirrigated
Range site: Crooked Creek soil—025X005N; Devilsgait soil—025X001N; Ocala soil—024X007N; Inclusion 1—024X006N; Inclusion 2—025X003N; Inclusion 3—024X007N; Inclusion 4—025X006N

189—Crooked Creek, gravelly substratum-Crooked Creek association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Crooked Creek silty clay loam, gravelly substratum, 0 to 2 percent slopes (60 percent)
• Crooked Creek silty clay loam, 0 to 2 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Alburz loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes, occasionally flooded (5 percent)
• Inclusion 3: Cumulic Haplaquolls, clayey over sandy or sandy-skeletal, montmorillonitic, frigid, 0 to 2 percent slopes (5 percent)

Characteristics of the Crooked Creek Soil, Gravelly Substratum

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,400 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 40 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 40 to 60 inches
Texture: Stratified very gravelly sandy loam to extremely gravelly sand
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.7 to 8.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,400 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.7 to 8.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Natural levees adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Slightly higher areas of flood plains and flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Alpine timothy, Nevada bluegrass

Inclusion 3
Classification: Cumulic Haplaquolls, clayey over sandy or sandy-skeletal, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels

Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture

Suitability of the Crooked Creek soil, gravelly substratum, for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Crooked Creek Soil, Gravelly Substratum, for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Probable source
Gravel: Probable source
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Interpretive Groups

Capability classification: Both Crooked Creek soils—5w, irrigated and nonirrigated
Range site: Both Crooked Creek soils—025X005N; Inclusion 1—025X005N; Inclusion 2—025X006N; Inclusion 3—025X005N

191—Tustell-Gance-Mahala association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Tustell gravelly loam, 4 to 15 percent slopes (40 percent)
- Gance very gravelly loam, 15 to 30 percent slopes (25 percent)
- Mahala very gravelly clay loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Wieland very gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Hunnton loam, 4 to 15 percent slopes (4 percent)
- Inclusion 3: Kelk silt loam, 0 to 4 percent slopes (4 percent)
- Inclusion 4: Puett very gravelly loam, 8 to 30 percent slopes (2 percent)

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Mahala Soil

Classification: Xerollic Paleargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Loess over residuum derived from tuff
Slope range: 15 to 50 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches

Average annual air temperature: About 47 degrees F
Frost-free period: About 100 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Very gravelly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 11 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 30 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.0 to 5.1 inches
Water-supplying capacity: 9.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans and fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Mahala soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Tustell Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones

Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Mahala Soil for Various Uses and Practices

Range seeding: Poor—small stones, rooting depth
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Tustell, Gance, and Mahala soils—7s, nonirrigated
Range site: Tustell soil—025X019N; Gance soil—025X019N; Mahala soil—025X018N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X025N

198—Tustell-Tustell, strongly sloping-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Tustell gravelly loam, 2 to 8 percent slopes (50 percent)
• Tustell gravelly loam, 8 to 15 percent slopes (25 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusion:
• Inclusion 1: Devilsgait silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Strongly Sloping Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusion

Inclusion 1
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Tustell soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the strongly sloping Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Tustell Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, percs slowly, rooting depth
Terraces and diversions: Too sandy

Suitability and Limitations of the Strongly Sloping Tustell Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Tustell soil—3e, irrigated, 7s, nonirrigated; the strongly sloping Tustell soil—7s, nonirrigated; Gance soil—7s, nonirrigated
Range site: Both Tustell soils—025X019N; Gance soil—025X019N; Inclusion 1—025X003N

200—Tustell-Zevadez-Donna association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Tustell gravelly loam, 2 to 8 percent slopes (40 percent)
- Zevadez loam, 4 to 15 percent slopes (30 percent)
- Donna gravelly loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Gance very gravelly loam, 4 to 15 percent slopes (10 percent)
- Inclusion 2: Vanwyper very gravelly loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,400 feet
Dominant present vegetation: Big sagebrush, bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,400 feet
Dominant present vegetation: Big sagebrush, bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.4 to 9.3 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium

Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Summits of upper fan piedmont remnants adjacent to mountains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,400 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, cheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, very firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, pasture, hayland
Suitability of the Tustell soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Tustell Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, percs slowly, rooting depth
Terraces and diversions: Too sandy

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, slope
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, rooting depth
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Tustell soil—3e, irrigated, 7s, nonirrigated; Zevadez soil—4e, irrigated, 6c, nonirrigated; Donna soil—7s, nonirrigated
Range site: Tustell soil—025X019N; Zevadez soil—025X019N; Donna soil—025X018N; Inclusion 1—025X019N; Inclusion 2—025X015N

201—Hopeka-Cavehill association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Hopeka very gravelly loam, 15 to 50 percent slopes (55 percent)
• Cavehill very gravelly silt loam, 15 to 50 percent slopes (30 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop—5 percent
• Inclusion 2: Lithic Haploxerolls, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes (4 percent)
• Inclusion 3: Typic Argixerolls, fine, montmorillonitic, frigid, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Nirac very gravelly silt loam, 15 to 50 percent slopes (3 percent)

Characteristics of the Hopeka Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, frigid
Position on landscape: South- and west-facing, convex side slopes of mountains
Parent material: Residuum and colluvium derived from limestone and dolostone
Slope range: 15 to 50 percent
Elevation: 6,000 to 8,200 feet
Dominant present vegetation: Black sagebrush, bluegrass, singleleaf pinyon, Utah juniper

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 45

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 10 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.2 to 0.5 inch
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D

Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cavehill Soil

Classification: Typic Calcixerolls, loamy-skeletal, carbonatic, frigid
Position on landscape: North- and east-facing, convex side slopes in the mountains
Parent material: Residuum and colluvium derived from dolostone and influenced by loess
Slope range: 15 to 50 percent
Elevation: 6,000 to 8,200 feet
Dominant present vegetation: Big sagebrush, Idaho fescue, singleleaf pinyon

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 85 days

Typical Profile

Percent stones and boulders on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 3 to 16 inches
Texture: Very cobbly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline

Depth: 16 to 37 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 37 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.3 to 4.4 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains, on all aspects, adjacent to areas of rock outcrop
Distinctive present vegetation: Big sagebrush, singleleaf pinyon, Utah juniper

Inclusion 3
Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: South- and west-facing foot slopes of mountains
Distinctive present vegetation: Big sagebrush, singleleaf pinyon, Utah juniper

Inclusion 4
Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: North- and east-facing, smooth side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Woodland, livestock grazing, wildlife habitat
Suitability of the Hopeka soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Cavehill soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair

Suitability of the Hopeka Soil for Woodland

Site index for common trees: Singleleaf pinyon, Utah juniper—33
Most important native understory plants: Black sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Hopeka Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Severe—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Cavehill Soil for Woodland

Site index for common trees: Singleleaf pinyon—35
Most important native understory plants: Big sagebrush, Idaho fescue

Suitability and Limitations of the Cavehill Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Severe—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Hopeka and Cavehill soils—7s, nonirrigated
Range site: Hopeka soil—028B060N; Cavehill soil—028B085N; Inclusion 1—none; Inclusion 2—025X062N; Inclusion 3—025X062N; Inclusion 4—025X012N

206—Hopeka-Grina-Izod association

Map Unit Setting

Position on landscape: Hills and mountains

Composition

Major components:
• Hopeka very gravelly loam, 15 to 50 percent slopes (40 percent)
• Grina silty clay loam, 30 to 50 percent slopes (30 percent)
• Izod very gravelly loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
• Inclusion 1: Karpp gravelly silt loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Rad silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Samor very gravelly loam, 8 to 15 percent slopes (2 percent)

Characteristics of the Hopeka Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, frigid
Position on landscape: Crests and side slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,400 to 6,400 feet
Dominant present vegetation: Black sagebrush, singleleaf pinyon, Utah juniper

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 45

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 10 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.2 to 0.5 inch
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of hills
Parent material: Residuum derived from tuff or siltstone
Slope range: 30 to 50 percent
Elevation: 5,400 to 6,400 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 to 35 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 7.0 to 8.0 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—4L
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Crests and side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,400 to 6,400 feet
Dominant present vegetation: Black sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Wyoming big sagebrush, Utah juniper

Inclusion 2
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Crests of hills
Distinctive present vegetation: Wyoming big sagebrush, Utah juniper

Major Uses

Current uses: Woodland, livestock grazing, wildlife habitat
Suitability of the Hopeka soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability of the Hopeka Soil for Woodland
Site index for common trees: Singleleaf pinyon, Utah juniper—33
Most important native understory plants: Black sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Hopeka Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Severe—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Grina Soil for Woodland
Site index for common trees: Utah juniper—20
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Izod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Hopeka soil—7s, nonirrigated; Grina soil—7e, nonirrigated; Izod soil—7s, nonirrigated
Range site: Hopeka soil—028B060N; Grina soil—025X059N; Izod soil—024X030N; Inclusion 1—025X059N; Inclusion 2—025X019N; Inclusion 3—025X059N

211—McIvey-Igdell-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- McIvey gravelly loam, 2 to 8 percent slopes (40 percent)
- Igdell gravelly silt loam, 2 to 8 percent slopes (25 percent)
- Bilbo very gravelly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Chen very gravelly loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Heechee cobbly loam, 4 to 15 percent slopes (5 percent)
- Inclusion 3: Welch silt loam, 0 to 2 percent slopes (3 percent)
- Crooked Creek silty clay loam, 0 to 2 percent slopes (2 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Colluvium
Slope range: 2 to 8 percent
Elevation: 6,400 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,400 to 6,800 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 17 to 38 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 38 to 39 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 39 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 4.3 inches

Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 7.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Foot slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth side slopes of fan piedmont remnants adjacent to mountains
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains next to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the McIvey soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good; wetland plants—very poor; shallow water areas—very poor
Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones
Local roads and streets: Moderate—frost action, shrink-swell potential
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Large stones, percs slowly

Suitability and Limitations of the Igdell Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: McIvey soil—4e, irrigated, 6c, nonirrigated; Igdell soil—4e, irrigated, 7s, nonirrigated; Bilbo soil—7s, nonirrigated
Range site: McIvey soil—025X012N; Igdell soil—025X017N; Bilbo soil—025X015N; Inclusion 1—025X017N; Inclusion 2—025X007N; Inclusion 3—025X003N; Inclusion 4—025X005N

212—McIvey-Eboda-Akler association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• McIvey gravelly loam, 2 to 15 percent slopes (45 percent)
• Eboda gravelly loam, 2 to 15 percent slopes (25 percent)
• Akler very cobbly loam, 2 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 0 to 2 percent slopes, rarely flooded (7 percent)
• Inclusion 2: Lerrow cobbly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (2 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Colluvium derived from tuff
Slope range: 2 to 15 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Loess over residuum derived from tuff
Slope range: 2 to 15 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex crests and side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 2 to 15 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass, squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 25

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Platy

Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.4 to 2.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, frost action, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: McIvey soil—6c, nonirrigated;

Eboda soil—6c, nonirrigated; Akler soil—7s, nonirrigated
Range site: McIvey soil—025X012N; Eboda soil—025X027N; Akler soil—025X018N; Inclusion 1—025X003N; Inclusion 2—025X009N; Inclusion 3—none; Inclusion 4—025X005N

213—McIvey-Quarz-Rock outcrop association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• McIvey gravelly silt loam, 15 to 50 percent slopes (45 percent)
• Quarz very gravelly loam, 30 to 50 percent slopes (25 percent)
• Rock outcrop (15 percent)
Contrasting inclusions:
• Inclusion 1: Cotant cobbly sandy clay loam, 8 to 30 percent slopes (5 percent)
• Inclusion 2: Eboda gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Shively loam, 30 to 50 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, drained, 0 to 2 percent slopes (2 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Colluvium derived from rhyolite and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff and rhyolite
Slope range: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Nevada bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 5

Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Rock Outcrop

Position on landscape: Crests and upper side slopes of mountains
Elevation: 7,000 to 8,000 feet
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: North-facing, concave side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Pachic Haploxerolls, coarse-loamy, mixed, frigid
Position on landscape: North-facing, slightly convex side slopes of mountains
Distinctive present vegetation: Serviceberry, snowberry, Idaho fescue

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: McIvey soil—7e, nonirrigated; Quarz soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated

Range site: McIvey soil—025X012N; Quarz soil—025X009N; Rock outcrop—none; Inclusion 1—025X017N; Inclusion 2—025X027N; Inclusion 3—025X010N; Inclusion 4—025X003N

215—McIvey-Short Creek-Cotant association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- McIvey gravelly silt loam, 15 to 30 percent slopes (40 percent)
- Short Creek very cobbly loam, 15 to 50 percent slopes (30 percent)
- Cotant very cobbly clay loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Typic Xerorthents, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes (10 percent)
- Inclusion 2: Pachic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 30 to 50 percent slopes (5 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Colluvium derived from rhyolite and welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Colluvium derived from rhyolite and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Percent stones and boulders on the surface: 15
Percent cobbles on the surface: 30
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from welded tuff and rhyolite
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly clay loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Xerorthents, loamy-skeletal, mixed, frigid
Position on landscape: Convex, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Pachic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Serviceberry, snowberry, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cotant soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Short Creek Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: McIvey soil—6e, nonirrigated; Short Creek soil—7s, nonirrigated; Cotant soil—7s, nonirrigated
Range site: McIvey soil—025X012N; Short Creek soil—025X015N; Cotant soil—025X017N; Inclusion 1—025X015N; Inclusion 2—025X010N

218—McIvey-Stampede-Heechee association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- McIvey gravelly loam, 2 to 8 percent slopes (35 percent)
- Stampede gravelly loam, 2 to 8 percent slopes (30 percent)
- Heechee cobbly loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Heechee cobbly loam, 8 to 15 percent slopes (5 percent)
- Inclusion 2: McIvey cobbly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Hussa loam, 0 to 2 percent slopes (4 percent)
- Inclusion 4: Gochea loam, 2 to 4 percent slopes (1 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Colluvium
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Heechee Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 11 to 33 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky

Consistence: Hard, friable
Reaction: Neutral

Depth: 33 to 63 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.2 to 6.4 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits and side slopes of fan piedmont remnants adjacent to foot slopes of mountains
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush

Inclusion 4
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush, bluebunch wheatgrass

Other inclusions of minor extent
Location: Near Lee
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Distinctive present vegetation: Basin big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the McIvey soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good; wetland plants—very poor; shallow water areas—very poor
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Heechee soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones
Local roads and streets: Moderate—frost action, shrink-swell potential
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Large stones, percs slowly

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey

Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Heechee Soil for Various Uses and Practices

Range seeding: Fair—large stones
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Slope, large stones

Interpretive Groups

Capability classification: McIvey soil—4e, irrigated, 6c, nonirrigated; Stampede soil—4e, irrigated, 6s, nonirrigated; Heechee soil—4s, irrigated, 7s, nonirrigated
Range site: McIvey soil—025X012N; Stampede soil—025X014N; Heechee soil—025X007N; Inclusion 1—025X007N; Inclusion 2—025X012N; Inclusion 3—025X003N; Inclusion 4—025X014N

219—McIvey-Chen-Tweener association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• McIvey very gravelly loam, 15 to 50 percent slopes (35 percent)
• Chen very gravelly loam, 15 to 30 percent slopes (35 percent)
• Tweener very gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
• Inclusion 1: McIvey gravelly loam, 8 to 15 percent slopes (5 percent)
• Inclusion 2: Quarz very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Cotant very gravelly loam, 8 to 30 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, 0 to 8 percent slopes (2 percent)

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.05; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex shoulders of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification:—Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid

Position on landscape: Concave, north-facing side slopes of hills

Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid

Position on landscape: Concave, south-facing side slopes of hills

Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow

Position on landscape: Smooth or slightly concave foot slopes of hills

Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 4

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid

Position on landscape: Narrow drainageways on hills

Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat

Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Poor—small stones

Roadfill: Poor—slope

Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—too clayey, small stones, slope

Shallow excavations: Severe—slope

Local roads and streets: Severe—slope

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Moderate—large stones

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones

Roadfill: Poor—depth to rock

Topsoil: Poor—depth to rock, small stones, slope

Daily cover for landfill: Poor—depth to rock, too clayey, small stones

Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—depth to rock, slope

Pond reservoir areas: Severe—depth to rock, slope

Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Suitability and Limitations of the Tweener Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones

Roadfill: Poor—depth to rock

Topsoil: Poor—depth to rock, small stones, slope

Daily cover for landfill: Poor—depth to rock, slope

Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—depth to rock, slope

Pond reservoir areas: Severe—depth to rock, slope

Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: McIvey, Chen, and Tweener soils—7s, nonirrigated

Range site: McIvey soil—025X012N; Chen soil—025X017N; Tweener soil—025X007N; Inclusion 1—025X027N; Inclusion 2—025X009N; Inclusion 3—025X017N; Inclusion 4—025X003N

221—Enko-Kelk-Enko, very fine sandy loam association

Map Unit Setting

Position on landscape: Piedmont slopes

Composition

Major components:

- Enko fine sandy loam, 2 to 8 percent slopes (35 percent)
- Kelk silt loam, 0 to 2 percent slopes (35 percent)
- Enko very fine sandy loam, 0 to 2 percent slopes (20 percent)

Contrasting inclusions:

- Inclusion 1: Puett fine sandy loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Chiara silt loam, 0 to 2 percent slopes (3 percent)

• Inclusion 3: Zevadez gravelly loam, 4 to 8 percent slopes (1 percent)
• Inclusion 4: Durixerollic Camborthids, coarse-loamy, mixed, mesic, 0 to 2 percent slopes (1 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Toe slopes and foot slopes of fan piedmont remnant side slopes
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches

Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of Enko Very Fine Sandy Loam

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.5 to 8.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass
Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and

legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability of Enko very fine sandy loam for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of Enko Very Fine Sandy Loam for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Enko soil—3e, irrigated, 6s, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated; Enko very fine sandy loam—2s, irrigated, 6s, nonirrigated
Range site: Both Enko soils—025X019N; Kelk soil—025X019N; Inclusion 1—025X025N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X003N

222—Enko-Zevadez-Puett association

Map Unit Setting

Position on landscape: Fan skirts, fan piedmont remnants

Composition

Major components:
• Enko fine sandy loam, 2 to 8 percent slopes (45 percent)
• Zevadez gravelly loam, 4 to 15 percent slopes (25 percent)
• Puett gravelly sandy loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Haybourne coarse sandy loam, 4 to 15 percent slopes (6 percent)
• Inclusion 2: Kelk silt loam, 0 to 4 percent slopes (5 percent)
• Inclusion 3: Connel coarse sandy loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Bioya loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core

Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,400 to 5,700 feet
Dominant present vegetation: Big sagebrush, black sagebrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, rooting depth
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Enko soil—3e, irrigated, 6s, nonirrigated; Zevadez soil—4e, irrigated, 6c, nonirrigated; Puett soil—7e, nonirrigated
Range site: Enko soil—025X019N; Zevadez soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

223—Enko-Kelk-Connel association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
- Enko very fine sandy loam, 2 to 4 percent slopes (40 percent)
- Kelk silt loam, 0 to 2 percent slopes (40 percent)
- Connel loam, 0 to 2 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Connel sandy loam, 15 to 30 percent slopes (3 percent)
- Inclusion 2: Kelk silt loam, 0 to 2 percent slopes, occasionally flooded (2 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,100 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow

Available water capacity: 6.5 to 8.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Connel Soil

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Stratified very gravelly coarse sand to extremely gravelly loamy sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 5.0 inches

Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Basin big sagebrush, black greasewood

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Connel soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Erodes easily

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Connel Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty
Terraces and diversions: Large stones, too sandy

Interpretive Groups

Capability classification: Enko soil—2e, irrigated, 6s, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated; Connel soil—4s, irrigated, 7s, nonirrigated
Range site: Enko soil—025X019N; Kelk soil—025X019N; Connel soil—025X019N; Inclusion 1—025X019N; Inclusion 2—024X006N

224—Enko-Enko, gravelly association

Map Unit Setting

Position on landscape: Partial ballenas

Composition

Major components:
- Enko sandy loam, 0 to 2 percent slopes (50 percent)
- Enko gravelly sandy loam, 4 to 15 percent slopes (35 percent)

Contrasting inclusions:
- Inclusion 1: Zevadez silt loam, 2 to 8 percent slopes (8 percent)
- Inclusion 2: Rad silt loam, 0 to 2 percent slopes (7 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gravelly Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Back slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Gravelly sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive

Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—5; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Crests and shoulders of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the gravelly Enko soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Gravelly Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, excess salts
Terraces and diversions: Slope, erodes easily, percs slowly

Interpretive Groups

Capability classification: Enko soil—2s, irrigated, 6s, nonirrigated; the gravelly Enko soil—6e, irrigated, 6s, nonirrigated
Range site: Both Enko soils—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

225—Enko-Hunnton association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Enko sandy loam, 2 to 8 percent slopes (50 percent)
• Hunnton loam, 2 to 15 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Wieland loam, 2 to 8 percent slopes (4 percent)
• Inclusion 2: Fulstone gravelly silt loam, 2 to 15 percent slopes (8 percent)
• Inclusion 3: Rad silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits and back slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 15 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline

Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Low sagebrush, Thurber needlegrass
Inclusion 3
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Interpretive Groups

Capability classification: Enko soil—3e, irrigated, 6s, nonirrigated; Hunnton soil—4e, irrigated, 6s, nonirrigated
Range site: Enko soil—025X019N; Hunnton soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X018N; Inclusion 3—025X019N

226—Enko-Rad association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
- Enko loam, 2 to 8 percent slopes (60 percent)
- Rad silt loam, 2 to 4 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Enko loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Connel sandy loam, 15 to 30 percent slopes (3 percent)
- Inclusion 3: Rad silt loam, 4 to 8 percent slopes (2 percent)
- Inclusion 4: Zevadez loam, 2 to 15 percent slopes (5 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,100 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.6 to 8.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rad Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,100 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 26 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 56 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline

Salinity: 8 to 16 mmhos per cm

Depth: 56 to 62 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Rad soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Erodes easily

Suitability and Limitations of the Rad Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Enko soil—3e, irrigated, 6s, nonirrigated; Rad soil—2e, irrigated, 6c, nonirrigated
Range site: Enko soil—025X019N; Rad soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

227—Enko-Wieland-Enko, moderately steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Enko loam, 8 to 15 percent slopes (40 percent)
- Wieland loam, 4 to 8 percent slopes (25 percent)
- Enko very gravelly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Zevadez silt loam, 8 to 15 percent slopes (6 percent)
- Inclusion 2: Bunky silt loam, 4 to 8 percent slopes (5 percent)
- Inclusion 3: Chiara silt loam, 2 to 4 percent slopes (4 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 5,600 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, invaded Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.6 to 8.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 8 percent
Elevation: 5,600 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, invaded Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay

Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Slightly concave back slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,600 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, invaded Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex back slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Haploxerollic Durorthids, fine-loamy,mixed, mesic

Position on landscape: Shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the moderately steep Enko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Slope, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Moderately Steep Enko Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Enko soil—4e, irrigated, 6s, nonirrigated; Wieland soil—3e, irrigated, 6s, nonirrigated; the moderately steep Enko soil—7s, nonirrigated
Range site: Both Enko soils—025X019N; Wieland soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

228—Enko-Kelk association

Map Unit Setting

Position on landscape: Fan skirts, inset fans

Composition

Major components:
- Enko sandy loam, 2 to 8 percent slopes (60 percent)
- Kelk silt loam, 0 to 2 percent slopes (30 percent)

Contrasting inclusions:
- Inclusion 1: Rad silt loam, 0 to 8 percent slopes (8 percent)
- Inclusion 2: Sonoma silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,200 feet

Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Basin big sagebrush, black greasewood, western wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate

Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Inset fans adjacent to the entrenched part of stream channels
Distinctive present vegetation: Nevada bluegrass, mat muhly

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Enko soil—3e, irrigated, 6s, nonirrigated; Kelk soil—2w, irrigated, 6w, nonirrigated
Range site: Enko soil—025X019N; Kelk soil—024X006N; Inclusion 1—025X019N; Inclusion 2—025X003N

229—Enko-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Enko loam, 4 to 15 percent slopes (50 percent)
• Puett fine sandy loam, 15 to 30 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Rad silt loam, 2 to 8 percent slopes (10 percent)
• Inclusion 2: Badland (5 percent)

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Big sagebrush, rubber rabbitbrush, Sandberg bluegrass, invaded Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.6 to 8.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Wyoming big sagebrush, bottlebrush squirreltail, invaded Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans and foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2

Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Slope, erodes easily

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Enko soil—4e, irrigated, 6s, nonirrigated; Puett soil—7e, nonirrigated
Range site: Enko soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—none

232—Bioya-Orovada association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
• Bioya very fine sandy loam, 2 to 4 percent slopes (60 percent)
• Orovada fine sandy loam, 4 to 15 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Puett fine sandy loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Zevadez gravelly very fine sandy loam, 8 to 30 percent slopes (4 percent)
• Inclusion 3: Hunewill gravelly sandy loam, 8 to 30 percent slopes (2 percent)
• Inclusion 4: Kelk silt loam, 0 to 2 percent slopes (4 percent)

Characteristics of the Bioya Soil

Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile
Percent pebbles on the surface: 5

Depth: 0 to 14 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 to 27 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 27 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle
Reaction: Moderately alkaline

Depth: 41 to 60 inches
Texture: Fine sandy loam

Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 4.2 to 5.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Bioya soil for named elements: Grain

and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Bioya Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Interpretive Groups

Capability classification: Bioya soil—3e, irrigated, 7s, nonirrigated; Orovada soil—4e, irrigated, 6c, nonirrigated
Range site: Bioya soil—025X019N; Orovada soil—025X019N; Inclusion 1—025X025N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—024X006N

236—Cleavage-Bullump-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Cleavage very cobbly loam, 30 to 50 percent slopes (50 percent)
- Bullump very gravelly loam, 30 to 50 percent slopes (20 percent)
- Hapgood very gravelly loam, 30 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes (10 percent)
- Inclusion 2: Pachic Argixerolls, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes (3 percent)
- Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,200 to 8,000 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth or concave, south-facing side slopes of mountains
Parent material: Colluvium derived from rhyolite and influenced by loess
Slope range: 30 to 50 percent
Elevation: 6,200 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, mountain brome, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing back slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,200 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, mountain brome

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches

Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Concave, north-facing, upper back slopes of mountains
Distinctive present vegetation: Tailcup lupine, Letterman needlegrass
Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing foot slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue, bluebunch wheatgrass
Inclusion 3
Position on landscape: Crests and upper side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage, Bullump, and Hapgood soils—7s, nonirrigated
Range site: Cleavage soil—025X024N; Bullump soil—025X016N; Hapgood soil—025X004N; Inclusion 1—025X028N; Inclusion 2—025X027N; Inclusion 3—none

237—Cleavage-Tweener-Pernog association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage extremely gravelly loam, 15 to 30 percent slopes (45 percent)
• Tweener very gravelly loam, 8 to 15 percent slopes (25 percent)
• Pernog gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Loncan very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Tusel very gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Heechee cobbly loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, 2 to 4 percent slopes,

occasionally flooded (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 7,100 to 7,500 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, lower side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,800 to 7,200 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernog Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum derived from welded tuff
Slope range: 15 to 50 percent

Elevation: 7,100 to 7,500 feet
Dominant present vegetation: Curlleaf mountainmahogany, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 17 inches
Texture: Very stony clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 10 to 12.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, upper side slopes of mountains
Distinctive present vegetation: Serviceberry, mountain brome

Inclusion 3
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernog soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tweener Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernog Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage soil—7s, nonirrigated; Tweener soil—7s, nonirrigated; Pernog soil—7e, nonirrigated
Range site: Cleavage soil—025X024N; Tweener soil—025X007N; Pernog soil—028B042N; Inclusion 1—025X012N; Inclusion 2—025X004N; Inclusion 3—025X007N; Inclusion 4—025X006N

238—Cleavage-Tweener-Graley association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (40 percent)
• Tweener very gravelly loam, 15 to 50 percent slopes (25 percent)
• Graley very gravelly loam, 15 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Sumine very gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 2: Bullump gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 3: Hapgood very gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 4: Rock outcrop (3 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 4 to 15 percent
Elevation: 6,900 to 7,400 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, lower side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,000 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches

Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, lower side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing, lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing, upper side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, mountain brome

Inclusion 3
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Inclusion 4
Position on landscape: Crests and upper side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage, Tweener, and Graley soils—7s, nonirrigated
Range site: Cleavage soil—025X024N; Tweener soil—025X007N; Graley soil—025X012N; Inclusion 1—025X009N; Inclusion 2—025X016N; Inclusion 3—025X004N; Inclusion 4—none

239—Cleavage-Vitale association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Cleavage extremely gravelly loam, 8 to 30 percent slopes (40 percent)
• Cleavage very gravelly loam, 4 to 15 percent slopes (25 percent)
• Vitale very gravelly loam, 4 to 15 percent slopes, rubbly (20 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 30 to 75 percent slopes (5 percent)
• Inclusion 2: Sumine very gravelly loam, 30 to 75 percent slopes (5 percent)
• Inclusion 3: Argic Cryoborolls, loamy-skeletal, mixed, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Argic Lithic Cryoborolls, loamy-skeletal, mixed, 4 to 15 percent slopes (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits and side slopes of plateaus
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 8 to 30 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Gravelly Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth summits and side slopes of plateaus
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,400 to 6,800 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vitale Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave summits and side slopes of plateaus
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 8 to 15 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Basin big sagebrush, mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 20
Percent cobbles on the surface: 5

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 6 to 23 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.5 to 4.2 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex side slopes of plateaus
Distinctive present vegetation: Black sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave side slopes of plateaus
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Argic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Slightly concave, upper, north-facing side slopes of plateaus
Distinctive present vegetation: Ceanothus, Letterman needlegrass

Inclusion 4
Classification: Argic Lithic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Convex summits of plateaus
Distinctive present vegetation: Curlleaf mountainmahogany

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the very gravelly Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vitale soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—good

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Very Gravelly Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vitale Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cleavage soils and the Vitale soil—7s, nonirrigated
Range site: Cleavage soil—025X024N; the very gravelly Cleavage soil—025X017N; Vitale soil—025X027N; Inclusion 1—025X055N; Inclusion 2—025X009N; Inclusion 3—025X052N; Inclusion 4—028X043N

240—Cleavage-Cleavage, strongly sloping association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Cleavage very gravelly loam, 2 to 4 percent slopes, stony (65 percent)
• Cleavage very gravelly loam, 8 to 15 percent slopes, stony (20 percent)
Contrasting inclusions:
• Inclusion 1: Chen gravelly loam, 2 to 8 percent slopes, stony (10 percent)
• Inclusion 2: Rubble land (5 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth or slightly convex summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 4 percent
Elevation: 6,300 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Strongly Sloping Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Back slopes and foot slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,300 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Shoulders and slightly concave summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 2
Position on landscape: Side slopes of plateaus
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the strongly sloping Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Strongly Sloping Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cleavage soils—7s, nonirrigated;
Range site: Both Cleavage soils—025X017N; Inclusion 1—025X017N; Inclusion 2—none

241—Cleavage-Cleavage, very cobbly-Loncan association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage very gravelly loam, 15 to 50 percent slopes (45 percent)
• Cleavage very cobbly loam, 30 to 70 percent slopes (20 percent)
• Loncan very gravelly loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (8 percent)
• Inclusion 2: Sumine very gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Hackwood gravelly loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 50 percent
Elevation: 6,400 to 8,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Cobbly Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rock outcrop on convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 30 to 70 percent
Elevation: 6,400 to 8,000 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north- and east-facing, lower side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 30 to 50 percent
Elevation: 6,400 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 7.0 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush
Inclusion 3
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north- and east-facing, upper side slopes of mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the very cobbly Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Very Cobbly Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cleavage soils and the Loncan soil—7s, nonirrigated
Range site: Cleavage soil—025X017N; the very cobbly Cleavage soil—025X024N; Loncan soil—025X012N; Inclusion 1—none; Inclusion 2—025X009N; Inclusion 3—025X065N

242—Cleavage-Loncan-Lyra association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage very gravelly loam, 15 to 50 percent slopes (30 percent)
• Loncan very gravelly loam, 30 to 75 percent slopes (30 percent)
• Lyra gravelly loam, 15 to 30 percent slopes (30 percent)

Contrasting inclusions:
- Inclusion 1: Loncan Variant loam, 2 to 8 percent slopes (5 percent)
- Inclusion 2: Lyra gravelly loam, 30 to 50 percent slopes (3 percent)
- Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 50 percent
Elevation: 7,000 to 7,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 30 to 75 percent
Elevation: 6,300 to 7,700 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 7.0 to 10 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lyra Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid, shallow
Position on landscape: Convex, lower side slopes of mountains

Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 2 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Extremely gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 12 inches
Texture: Extremely cobbly clay
Structure: Platy
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 12 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Duric Haploxerolls, fine-loamy, mixed, mesic
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid, shallow
Position on landscape: Convex, lower side slopes of mountains
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lyra soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lyra Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Cleavage soil—7s, nonirrigated; Loncan soil—7s, nonirrigated; Lyra soil—7e, nonirrigated
Range site: Cleavage soil—025X017N; Loncan soil—025X012N; Lyra soil—025X014N; Inclusion 1—025X003N; Inclusion 2—025X014N; Inclusion 3—none

243—Cleavage-Sumine-McIvey association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage very gravelly loam, 15 to 50 percent slopes (35 percent)
• Sumine very gravelly loam, 15 to 50 percent slopes (30 percent)
• McIvey very gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hapgood very gravelly loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Rock outcrop (4 percent)
• Inclusion 3: Cleavage very cobbly loam, 8 to 15 percent slopes (3 percent)
• Inclusion 4: Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches

Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South- and north-facing side slopes of mountains
Parent material: Colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 30 percent
Elevation: 6,400 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5

Percent pebbles on the surface: 40

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.05; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain brome

Inclusion 2
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex foot slopes of mountains
Distinctive present vegetation: Black sagebrush

Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid

Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage, Sumine, and McIvey soils—7s, nonirrigated
Range site: Cleavage soil—025X017N; Sumine soil—025X009N; McIvey soil—025X012N; Inclusion 1—025X004N; Inclusion 2—none; Inclusion 3—025X024N; Inclusion 4—025X005N

244—Cleavage, moderately steep-Cleavage-Eboda association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cleavage very gravelly loam, 15 to 30 percent slopes (40 percent)
• Cleavage very gravelly loam, 8 to 15 percent slopes (25 percent)
• Eboda loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Welch loam, drained, 2 to 4 percent slopes (5 percent)
• Inclusion 3: Cleavage very cobbly loam, 15 to 30 percent slopes (3 percent)

Characteristics of the Moderately Steep Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 15 to 30 percent
Elevation: 6,300 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable

Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 8 to 15 percent
Elevation: 6,800 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 7.0 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Loess over residuum derived from shale, sandstone, and conglomerate
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: The entrenched part of narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of hills in areas of rock outcrop
Distinctive present vegetation: Black sagebrush, low sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the moderately steep Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Moderately Steep Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cleavage soils—7s, nonirrigated; Eboda soil—6c, nonirrigated
Range site: Both Cleavage soils—025X017N; Eboda soil—025X027N; Inclusion 1—none; Inclusion 2—025X003N; Inclusion 3—025X024N

245—Cleavage-Glean-Inpendence association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
- Cleavage very gravelly loam, 4 to 15 percent slopes, stony (45 percent)
- Glean gravelly sandy loam, 8 to 15 percent slopes (25 percent)
- Inpendence gravelly loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Ebic gravelly loam, 8 to 15 percent slopes, stony (5 percent)
- Inclusion 2: Chen gravelly loam, 4 to 15 percent slopes, stony (5 percent)
- Inclusion 3: Entic Cryumbrepts, fine-loamy, mixed, 15 to 50 percent slopes (3 percent)
- Inclusion 4: Hackwood loam, 4 to 15 percent slopes (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly convex summits and shoulders of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 7,000 to 7,900 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Glean Soil

Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Foot slopes of plateaus
Parent material: Colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,500 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 45 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 25 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 25 to 60 inches
Texture: Very gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 60 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Moderately rapid
Available water capacity: 3.5 to 5.3 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.24; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Inpendence Soil

Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: North-facing, upper back slopes of plateaus
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 7,000 to 7,900 feet
Dominant present vegetation: Quaking aspen

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 40 degrees F
Frost-free period: About 70 days

Typical Profile

Surface litter: Organic material 4 inches thick

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly acid

Depth: 9 to 60 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 3.6 to 6.0 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave summits and smooth side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Entic Cryumbrepts, fine-loamy, mixed
Position on landscape: Upper, north-facing back slopes of plateaus
Distinctive present vegetation: Snowbrush ceanothus

Inclusion 4
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Lower, north-facing, concave back slopes of plateaus
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Glean soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Inpendence soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Glean Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—depth to rock, thin layer
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Inpendence Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage soil—7s, nonirrigated; Glean soil—6e, nonirrigated; Inpendence soil—7e, nonirrigated
Range site: Cleavage soil—025X017N; Glean soil—025X056N; Inpendence soil—025X002N; Inclusion 1—025X017N; Inclusion 2—025X017N; Inclusion 3—025X052N; Inclusion 4—025X065N

247—Cleavage-Sumine-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cleavage extremely gravelly loam, 30 to 50 percent slopes (40 percent)
• Sumine very gravelly loam, 30 to 50 percent slopes (30 percent)
• Hapgood very gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Inpendence loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Tusel gravelly loam, 30 to 50 percent slopes (2 percent)
• Inclusion 4: Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes (3 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex crests and side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,800 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid

Position on landscape: Concave, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,800 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,800 feet
Dominant present vegetation: Mountain big sagebrush, mountain brome, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing back slopes of mountains
Distinctive present vegetation: Quaking aspen

Inclusion 2

Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 3
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth side slopes of mountains
Distinctive present vegetation: Idaho fescue
Inclusion 4
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Concave, north-facing, upper back slopes directly below the shoulders of mountains
Distinctive present vegetation: Letterman needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage, Sumine, and Hapgood soils—7s, nonirrigated
Range site: Cleavage soil—025X024N; Sumine soil—025X009N; Hapgood soil—025X004N; Inclusion 1—025X002N; Inclusion 2—none; Inclusion 3—025X010N; Inclusion 4—025X028N

248—Cleavage-Tweener-Lerrow association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cleavage very gravelly loam, 4 to 15 percent slopes (35 percent)
• Tweener very gravelly sandy loam, 4 to 15 percent slopes (25 percent)
• Lerrow gravelly loam, 4 to 15 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Durargidic Argixerolls, fine-loamy, mixed, frigid, 8 to 15 percent slopes (5 percent)
• Inclusion 2: Sumine very gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes, occasionally flooded (3 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes, frequently flooded (2 percent)

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and shoulders of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data
Average annual precipitation: About 14 inches

Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex back slopes and foot slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,400 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.6 inch to 1.1 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Residuum derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,500 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 30

Depth: 0 to 5 inches
Texture: Gravelly loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Alpine timothy, Nevada bluegrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Moderate—depth to rock, too clayey, slope

Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavage soil—7s, nonirrigated; Tweener soil—7s, nonirrigated; Lerrow soil—6s, nonirrigated
Range site: Cleavage soil—025X017N; Tweener soil—025X007N; Lerrow soil—025X027N; Inclusion 1—025X027N; Inclusion 2—025X009N; Inclusion 3—025X006N; Inclusion 4—025X005N

251—Ocala-Kelk-Devilsgait association

Map Unit Setting

Position on landscape: Alluvial flats, fan skirts, flood plains

Composition

Major components:
• Ocala silt loam, 0 to 2 percent slopes (30 percent)
• Kelk silt loam, 0 to 2 percent slopes (30 percent)
• Devilsgait silt loam, 0 to 2 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Crooked Creek silty clay loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, drained, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Woofus loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts adjacent to flood plains
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Creeping wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 7 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Willow, wildrye, basin wildrye, rush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand, silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Natural levees adjacent to abandoned stream channels
Distinctive present vegetation: Wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture

Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess sodium, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Ocala soil—4w, irrigated, 6w, nonirrigated; Kelk soil—2w, irrigated, 6w, nonirrigated; Devilsgait soil—5w, irrigated, 6w, nonirrigated
Range site: Ocala soil—024X007N; Kelk soil—024X006N; Devilsgait soil—025X001N; Inclusion 1—025X005N; Inclusion 2—025X003N; Inclusion 3—025X001N

256—Ocala, occasionally flooded-Ocala association

Map Unit Setting

Position on landscape: Alluvial flats, fan skirts

Composition

Major components:
• Ocala silt loam, 0 to 2 percent slopes, occasionally flooded (60 percent)
• Ocala silt loam, 0 to 2 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Sonoma silt loam, 0 to 2 percent slopes (10 percent)
• Inclusion 2: Typic Halaquepts, coarse-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Devilsgait silt loam, drained, 0 to 2 percent slopes (2 percent)

Characteristics of the Occasionally Flooded Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,700 feet

Dominant present vegetation: Black greasewood, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: More than 4 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Stratified gravelly very fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Lower fan skirts
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Rubber rabbitbrush, black greasewood

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: More than 4 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 7 to 12 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Upper alluvial flats
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Typic Halaquepts, coarse-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan skirts
Distinctive present vegetation: Inland saltgrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Channeled fan skirts
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the occasionally flooded Ocala soil for named elements: Wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor
Suitability of the Ocala soil for named elements: Wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor

Suitability and Limitations of the Occasionally Flooded Ocala Soil for Various Uses and Practices
Range seeding: Poor—excess salts, excess sodium, too crusty
Roadfill: Good
Topsoil: Poor—excess salts, excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess sodium, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—excess salts, excess sodium, too crusty
Roadfill: Poor—low strength
Topsoil: Poor—excess salts, excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess sodium, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Ocala soils—7w, nonirrigated
Range site: The occasionally flooded Ocala soil—024X008N; Ocala soil—024X007N; Inclusion 1—025X003N; Inclusion 2—026X002N; Inclusion 3—025X003N

258—Ocala-Devilsgait-Devilsgait, occasionally flooded association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Ocala silt loam, 0 to 2 percent slopes (50 percent)
• Devilsgait silt loam, 0 to 2 percent slopes (20 percent)
• Devilsgait very fine sandy loam—0 to 2 percent slopes, occasionally flooded (15 percent)
Contrasting inclusions:
• Inclusion 1: Sonoma silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 2: Moranch very fine sandy loam, 0 to 2 percent slopes (4 percent)
• Inclusion 3: Devilsgait silt loam, 0 to 2 percent slopes, frequently flooded (4 percent)
• Inclusion 4: Bloor silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,250 feet
Dominant present vegetation: Rubber rabbitbrush, black greasewood, basin wildrye

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,250 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Occasionally Flooded Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,100 to 5,250 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches

Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 11.5 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 2
Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Basin wildrye, creeping wildrye

Inclusion 4
Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye, inland saltgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor
Suitability of the occasionally flooded Devilsgait soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good

Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Suitability and Limitations of the Occasionally Flooded Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Ocala soil—4w, irrigated, 6w, nonirrigated; Devilsgait soil—3c, irrigated, 6c, nonirrigated; the occasionally flooded Devilsgait soil—3w, irrigated, 6w, nonirrigated
Range site: Ocala soil—024X007N; both Devilsgait soils—025X003N; Inclusion 1—024X006N; Inclusion 2—024X008N; Inclusion 3—025X001N; Inclusion 4—024X007N

259—Ocala-Sonoma association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Ocala silt loam, 0 to 2 percent slopes (70 percent)
• Sonoma silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Ocala silt loam, 0 to 2 percent slopes, occasionally flooded (10 percent)
• Inclusion 2: Devilsgait silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Rubber rabbitbrush, black greasewood, basin wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 7 to 12 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: High

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Slightly lower areas of flood plains
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—fair
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium, too crusty
Roadfill: Poor—low strength
Topsoil: Poor—excess salts, excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—excess sodium, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, excess sodium
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight

Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Ocala soil—6w, irrigated, 7w, nonirrigated; Sonoma soil—2w, irrigated, 7w, nonirrigated
Range site: Ocala soil—024X007N; Sonoma soil—025X003N; Inclusion 1—024X008N; Inclusion 2—025X003N

260—Ocala-Halleck association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Ocala silt loam, 0 to 2 percent slopes (50 percent)
• Halleck silt loam, 0 to 2 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic, 0 to 2 percent slopes (6 percent)
• Inclusion 2: Woofus loam, 0 to 2 percent slopes (4 percent)

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Rubber rabbitbrush, greasewood, basin wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline

Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Characteristics of the Halleck Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Tufted hairgrass, alpine timothy, cinquefoil, sedge

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam

Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Low areas on flood plains
Distinctive present vegetation: Alkali muhly, alkali sacaton
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture

Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Ocala Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Halleck Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Ocala soil—4w, irrigated, 6w, nonirrigated; Halleck soil—5w, irrigated and nonirrigated
Range site: Ocala soil—024X007N; Halleck soil—025X005N; Inclusion 1—024X009N; Inclusion 2—025X003N

261—Linkup-Roca-Vanwyper association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Linkup very cobbly loam, 15 to 30 percent slopes (40 percent)
- Roca very gravelly loam, 15 to 30 percent slopes (30 percent)
- Vanwyper very cobbly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Hussa loam, gravelly substratum, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Bregar very gravelly loam, 8 to 15 percent slopes (3 percent)
- Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Linkup Soil

Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from andesite, sandstone, and conglomerate
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 25
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 8 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 16 inches
Texture: Cobbly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 16 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.4 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from andesite, sandstone, and conglomerate
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.7 to 3.0 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from andesite, rhyolite, quartzite, and shale
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 8 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, Thurber needlegrass
Inclusion 3
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Linkup soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Roca soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Linkup Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, large stones, slope

Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Roca Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength, large stones
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Linkup, Roca, and Vanwyper soils—7s, nonirrigated
Range site: Linkup soil—025X018N; Roca soil—025X014N; Vanwyper soil—025X019N; Inclusion 1—025X003N; Inclusion 2—025X018N; Inclusion 3—none

262—Linkup-Roca association

Map Unit Setting

Position on landscape: Hills, mountains

Composition

Major components:
• Linkup cobbly loam, 4 to 15 percent slopes (65 percent)
• Roca very gravelly loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Vanwyper very cobbly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: McIvey gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (5 percent)

Characteristics of the Linkup Soil

Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,600 to 7,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 8 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 16 inches
Texture: Cobbly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 16 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.5 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,600 to 7,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.7 to 3.0 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Concave, south-facing side slopes of mountains
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing, upper side slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 3
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Linkup soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Roca soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Linkup Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, large stones
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Roca Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Linkup and Roca soils—7s, nonirrigated
Range site: Linkup soil—025X018N; Roca soil—025X014N; Inclusion 1—025X019N; Inclusion 2—025X012N; Inclusion 3—none

271—Pernty-Shivlum association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Pernty very gravelly loam, 4 to 15 percent slopes (45 percent)
• Shivlum silt loam, 15 to 30 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Loncan gravelly loam, 30 to 50 percent slopes (6 percent)
• Inclusion 2: Lithic Calcixerolls, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Sumine very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Shivlum Soil

Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Colluvium derived from sandstone or conglomerate and influenced by loess
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, basin wildrye

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 9 to 34 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Lithic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex foot slopes of mountains
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Shivlum soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Pernty Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Shivlum Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—low strength
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Pernty soil—7s, nonirrigated; Shivlum soil—6e, nonirrigated
Range site: Pernty soil—025X012N; Shivlum soil—025X012N; Inclusion 1—025X012N; Inclusion 2—025X014N; Inclusion 3—025X009N; Inclusion 4—none

272—Pernty-Sumine-Cleavage association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Pernty very gravelly loam, 30 to 50 percent slopes (50 percent)
- Sumine very gravelly loam, 15 to 50 percent slopes (20 percent)
- Cleavage extremely gravelly loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Quarz gravelly loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Rock outcrop (5 percent)
- Inclusion 3: Cleavage gravelly loam, 4 to 15 percent slopes (3 percent)
- Inclusion 4: Cotant gravelly loam, 4 to 15 percent slopes (2 percent)

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex or smooth, lower side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,300 to 7,300 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches

Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,800 to 7,300 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing, lower side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave areas on crests of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 4
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Slightly convex, lower side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Pernty Soil for Various Uses and Practices

Range seeding: Poor—droughty, too arid, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Pernty, Sumine, and Cleavage soils—7s, nonirrigated
Range site: Pernty soil—025X012N; Sumine soil—025X009N; Cleavage soil—025X024N; Inclusion 1—025X0014N; Inclusion 2—none; Inclusion 3—025X017N; Inclusion 4—025X017N

282—Bloor-Enko association

Map Unit Setting

Position on landscape: Alluvial flats, fan skirts

Composition

Major components:
• Bloor silt loam, 0 to 2 percent slopes (50 percent)
• Enko fine sandy loam, 2 to 4 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Sonoma silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Bloor Soil

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by loess
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,300 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 8 to 16 mmhos per cm

Depth: 8 to 20 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 42 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 42 to 60 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Very strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 60 to 72 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 4.7 to 7.3 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C

Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,200 to 5,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Flood plains adjacent to fan skirts
Distinctive present vegetation: Basin big sagebrush, western wheatgrass

Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Distinctive present vegetation: Basin big sagebrush, western wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Bloor soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Bloor Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium
Roadfill: Good
Topsoil: Poor—excess salts
Daily cover for landfill: Good
Shallow excavations: Moderate—wetness
Local roads and streets: Moderate—frost action, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salts
Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Capability classification: Bloor soil—6s, irrigated, 7s, nonirrigated; Enko soil—2e, irrigated, 6s, nonirrigated
Range site: Bloor soil—024X007N; Enko soil—025X019N; Inclusion 1—024X006N; Inclusion 2—024X006N

283—Bloor-Connel-Kelk association

Map Unit Setting

Position on landscape: Flood plains, fan skirts

Composition

Major components:
- Bloor silt loam, slightly saline, 0 to 2 percent slopes (35 percent)
- Connel loam, 0 to 2 percent slopes (35 percent)
- Kelk silt loam, 0 to 2 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Ocala silt loam, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Orovada silt loam, 0 to 2 percent slopes (5 percent)
- Inclusion 3: Bloor silt loam, 0 to 2 percent slopes (3 percent)
- Inclusion 4: Woofus silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Bloor Soil

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 8 to 20 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: More than 16 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 42 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 42 to 60 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Very strongly alkaline
Salinity: 8 to 16 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 60 to 72 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 4.7 to 7.3 inches
Water-supplying capacity: 6 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low

Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Connel Soil

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Upper fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Stratified very gravelly coarse sand to extremely gravelly loamy sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Lower fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—occasional; duration—brief to long; months—February through June
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 2

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Alkali sacaton, inland saltgrass

Inclusion 4

Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Bloor soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—fair; shallow water areas—very poor
Suitability of the Connel soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Bloor Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium
Roadfill: Good
Topsoil: Poor—excess salts
Daily cover for landfill: Good
Shallow excavations: Moderate—wetness
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Connel Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty
Terraces and diversions: Large stones, too sandy

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Moderate—flooding
Local roads and streets: Severe—low strength, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Bloor soil—6s, irrigated, 7s, nonirrigated; Connel soil—4s, irrigated, 7s, nonirrigated; Kelk soil—2w, irrigated, 6w, nonirrigated
Range site: Bloor soil—024X006N; Connel soil—025X019N; Kelk soil—024X006N; Inclusion 1—024X006N; Inclusion 2—025X019N; Inclusion 3—024X007N; Inclusion 4—025X003N

291—Tweba-Moranch association

Map Unit Setting

Position on landscape: Flood plains, alluvial flats

Composition

Major components:
- Tweba very fine sandy loam, 0 to 2 percent slopes (60 percent)
- Moranch silt loam, 0 to 2 percent slopes (30 percent)

Contrasting inclusions:
- Inclusion 1: Kelk silt loam, 0 to 2 percent slopes (8 percent)
- Inclusion 2: Woofus silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Tweba Soil

Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,400 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 19 inches
Texture: Very fine sandy loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 34 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 34 to 60 inches
Texture: Stratified very fine sandy loam to loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 42 to 60 inches
Flooding: Frequency—rare
Permeability: Moderate
Available water capacity: 6.4 to 8.6 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moranch Soil

Classification: Durorthidic Torriorthents, coarse-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,400 feet
Dominant present vegetation: Black greasewood, basin wildrye, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 5 to 20 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm

Depth: 20 to 61 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Moderately slow

Available water capacity: 10.5 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: B
Erosion factors (surface layer): K value—.64; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts adjacent to flood plains
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Natural levees on the flood plains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Tweba soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Moranch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Tweba Soil for Various Uses and Practices
Range seeding: Fair—excess salts
Roadfill: Good
Topsoil: Good
Daily cover for landfill: Fair—too sandy
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily
Terraces and diversions: Erodes easily, too sandy, soil blowing

Suitability and Limitations of the Moranch Soil for Various Uses and Practices
Range seeding: Poor—excess salts, too crusty
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—flooding
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily, excess salts
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Capability classification: Tweba soil—3w, irrigated, 6w, nonirrigated; Moranch soil—3s, irrigated, 7s, nonirrigated
Range site:; Tweba soil—025X003N; Moranch soil—024X008N; Inclusion 1—024X006N; Inclusion 2—025X003N

294—Sonoma Variant-Halleck association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Sonoma Variant silt loam, 0 to 2 percent slopes (70 percent)
• Halleck silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Aeric Halaquepts, fine-loamy over sandy or sandy-skeletal, mixed, mesic, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Aeric Halaquepts, clayey over sandy or sandy-skeletal, montmorillonitic, mesic, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Ocala silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Devilsgait silt loam, drained, 0 to 2 percent slopes (2 percent)

Characteristics of the Sonoma Variant Soil

Classification: Aeric Fluvaquents, coarse-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains

Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,550 feet
Dominant present vegetation: Rubber rabbitbrush, basin wildrye, alkali sacaton, inland saltgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15
Depth: 0 to 2 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 2 to 29 inches
Texture: Loam
Structure: Massive
Consistence: Slightly Hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 to 61 inches
Texture: Stratified extremely gravelly coarse sand to very gravelly loamy sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 24 to 36 inches
Flooding: Frequency—rare
Permeability: Moderate
Available water capacity: 5.0 to 6.8 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—3; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Halleck Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,550 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, sedge

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aeric Halaquepts, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic

Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Aeric Halaquepts, clayey over sandy or sandy-skeletal, montmorillonitic, mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Sonoma Variant soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair
Suitability of the Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Sonoma Variant Soil for Various Uses and Practices
Range seeding: Poor—excess salts
Roadfill: Fair—wetness
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Frost action, cutbanks cave
Irrigation: Wetness, rooting depth, erodes easily
Terraces and diversions: Erodes easily, wetness, too sandy

Suitability and Limitations of the Halleck Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Sonoma Variant soil—3w, irrigated, 6w, nonirrigated; Halleck soil—5w, irrigated and nonirrigated
Range site: Sonoma Variant soil—024X007N; Halleck soil—025X005N; Inclusion 1—024X007N; Inclusion 2—024X007N; Inclusion 3—024X007N; Inclusion 4—025X003N

303—Akler-Cleavage-McIvey association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Akler very cobbly loam, 15 to 30 percent slopes (40 percent)
• Cleavage very cobbly loam, 15 to 50 percent slopes (25 percent)
• McIvey gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Sumine very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Rubble land (5 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex, lower side slopes of mountains

Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 8,400 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 25

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.1 to 1.7 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 8,400 feet
Dominant present vegetation: Black sagebrush, low sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: North-facing, concave side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 8,400 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing, concave side slopes of mountains
Distinctive present vegetation: Wyoming big sagebrush, bluebunch wheatgrass

Inclusion 3
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope

Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Akler soil—7s, nonirrigated; Cleavage soil—7s, nonirrigated; McIvey soil—6e, nonirrigated
Range site: Akler soil—025X018N; Cleavage soil—025X024N; McIvey soil—025X012N; Inclusion 1—none; Inclusion 2—025X009N; Inclusion 3—none

304—Akler-Yuko-Welch association

Map Unit Setting

Position on landscape: Hills, drainageways on hills

Composition

Major components:
• Akler cobbly clay loam, 8 to 15 percent slopes (40 percent)
• Yuko very gravelly loam, 8 to 15 percent slopes (30 percent)
• Welch silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Puett gravelly loamy sand, 15 to 50 percent slopes (10 percent)
• Inclusion 2: Donna silt loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth or slightly concave summits and side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Cobbly clay loam

Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Summits and convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam

Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Basin big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 12 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Eroded shoulders of hills
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Toe slopes of hills and summits of fan piedmont remnants
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Welch soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—poor

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock

Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, low strength, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Akler soil—7s, nonirrigated; Yuko soil—7s, nonirrigated; Welch soil—6w, nonirrigated
Range site: Akler soil—025X018N; Yuko soil—025X019N; Welch soil—025X003N; Inclusion 1—025X025N; Inclusion 2—025X018N

305—Akler-Kleckner-Short Creek association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Akler gravelly clay loam, 15 to 30 percent slopes (50 percent)
• Kleckner gravelly loam, 30 to 50 percent slopes, stony (20 percent)
• Short Creek very cobbly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (10 percent)
• Inclusion 2: Cotant very gravelly loam, 15 to 50 percent slopes (3 percent)
• Inclusion 3: Shively loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,500 feet
Dominant present vegetation: Alkali sagebrush, low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 25

Depth: 0 to 6 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight

Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing, lower side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.5 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—iow
Potential for frost action: Low

Characteristics of the Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 7,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Percent stones and boulders on the surface: 15
Percent cobbles on the surface: 30
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Classification: Pachic Haploxerolls, coarse-loamy, mixed, frigid
Position on landscape: Smooth, north-facing, upper side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Short Creek Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Akler soil—7e, nonirrigated; Kleckner soil—7e, nonirrigated; Short Creek soil—7s, nonirrigated
Range site: Akler soil—025X018N; Kleckner soil—025X014N; Short Creek soil—025X015N; Inclusion 1—none; Inclusion 2—025X017N; Inclusion 3—025X010N

306—Akler-Quarz-Soughe association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Akler extremely cobbly loam, 15 to 30 percent slopes (35 percent)
• Quarz cobbly loam, 8 to 15 percent slopes (30 percent)
• Soughe very cobbly loam, 8 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 0 to 4 percent slopes (5 percent)
• Inclusion 2: Short Creek cobbly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow, 8 to 15 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 30
Percent pebbles on the surface: 35

Depth: 0 to 6 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.1 to 1.7 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,200 to 7,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Smooth, south-facing, lower side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff

Slope range: 8 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave, south-facing, upper side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Xerollic Durargids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Slightly concave areas on crests of hills
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices

Range seeding: Fair—large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Soughe Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Akler, Quarz, and Soughe soils—7s, nonirrigated
Range site: Akler soil—025X018N; Quarz soil—025X014N; Soughe soil—025X019N; Inclusion 1—025X003N; Inclusion 2—025X015N; Inclusion 3—025X019N; Inclusion 4—none

307—Akler-Lerrow association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Akler loam, 4 to 15 percent slopes (50 percent)
• Lerrow gravelly loam, 4 to 15 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Eboda loam, 4 to 15 percent slopes (2 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 28 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave areas on crests and smooth side slopes of hills
Parent material: Residuum derived from welded tuff or andesite
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 30

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Slightly higher areas of narrow drainageways on hills
Distinctive present vegetation: Alpine timothy, Nevada bluegrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Slightly lower areas of narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass

Inclusion 3
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Moderate—depth to rock, too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Akler soil—7s, nonirrigated; Lerrow soil—6s, nonirrigated
Range site: Akler soil—025X018N; Lerrow soil—025X027N; Inclusion 1—025X006N; Inclusion 2—025X005N; Inclusion 3—025X027N

309—Akler-Vanwyper-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Akler extremely cobbly loam, 15 to 50 percent slopes (50 percent)
- Vanwyper gravelly loam, 15 to 30 percent slopes, stony (25 percent)
- Rock outcrop (15 percent)

Contrasting inclusions:
- Inclusion 1: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Linkup cobbly loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex, north-facing and smooth, south-facing side slopes of hills
Parent material: Residuum derived from rhyolite and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 30
Percent pebbles on the surface: 35

Depth: 0 to 6 inches
Texture: Extremely cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.1 to 1.7 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly concave, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite and welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: .1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Rock Outcrop

Position on landscape: Summits of hills
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass
Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Crests of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Akler soil—7s, nonirrigated; Vanwyper soil—7e, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Akler soil—025X018N; Vanwyper soil—025X019N; Rock outcrop—none; Inclusion 1—025X018N; Inclusion 2—025X018N

311—Shayla-Dewar-Vanwyper association

Map Unit Setting

Position on landscape: Fan piedmont remnants, hills

Composition

Major components:
• Shayla very gravelly silty clay loam, 30 to 50 percent slopes (45 percent)
• Dewar gravelly loam, 2 to 8 percent slopes (25 percent)
• Vanwyper gravelly loam, 15 to 30 percent slopes, stony (20 percent)
Contrasting inclusions:
• Inclusion 1: Loncan Variant loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (3 percent)
• Inclusion 3: Devilsgait silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Shayla Soil

Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and siltstone
Slope range: 30 to 50 percent
Elevation: 5,500 to 6,200 feet

Dominant present vegetation: Black sagebrush, big sagebrush, bottlebrush squirreltail, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly silty clay loam
Structure: Subangular blocky
Consistence: Soft, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 13 inches
Texture: Very gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 13 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 15 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.9 inch to 1.3 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of hills

Parent material: Residuum and colluvium derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: .1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Duric Haploxerolls, fine-loamy, mixed, mesic
Position on landscape: Inset fan remnants
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Position on landscape: Side slopes of fan piedmont remnants with a rock core and side slopes of hills
Distinctive present vegetation: None

Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Inset fans and narrow drainageways on hills
Distinctive present vegetation: Basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Shayla soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Dewar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Shayla Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dewar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope

Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Shayla soil—7s, nonirrigated; Dewar soil—7s, nonirrigated; Vanwyper soil—7e, nonirrigated
Range site: Shayla soil—025X025N; Dewar soil—025X019N; Vanwyper soil—025X019N; Inclusion 1—025X003N; Inclusion 2—none; Inclusion 3—025X001N

321—Grina-Lyra-Loncan Variant association

Map Unit Setting

Position on landscape: Hills, drainageways on hills

Composition

Major components:
• Grina loam, 30 to 50 percent slopes (40 percent)
• Lyra gravelly loam, 15 to 30 percent slopes (30 percent)
• Loncan Variant loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Loncan very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex, south-facing side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 30 to 50 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.3 to 3.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—4L
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lyra Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid, shallow
Position on landscape: Crests and convex, north-facing and smooth, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from tuff or shale
Slope range: 15 to 30 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 2 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Extremely gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 12 inches
Texture: Extremely cobbly clay
Structure: Platy
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 12 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 0.6 to 1.0 inch
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Variant Soil

Classification: Aridic Duric Haploxerolls, fine-loamy, mixed, mesic
Position on landscape: Narrow drainageways on hills
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 12 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 12 to 38 inches
Texture: Stratified loam to clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 38 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 9.6 to 11 inches
Water-supplying capacity: 8 to 14 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Lyra soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Loncan Variant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Grina Soil for Woodland
Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lyra Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Loncan Variant Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Slight
Local roads and streets: Moderate—low strength, flooding, frost action
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Grina soil—7e, nonirrigated; Lyra soil—7e, nonirrigated; Loncan Variant soil—6c, nonirrigated
Range site: Grina soil—025X059N; Lyra soil—025X014N; Loncan Variant soil—025X003N; Inclusion 1—025X012N; Inclusion 2—none

322—Grina-Enko, moderately steep-Enko association

Map Unit Setting

Position on landscape: Partial ballenas

Composition

Major components:
- Grina loam, 15 to 50 percent slopes (45 percent)
- Enko sandy loam, 15 to 30 percent slopes (25 percent)
- Enko loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Karpp silt loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Chiara silt loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: South-facing side slopes of partial ballenas with a rock core
Parent material: Residuum derived from tuff and siltstone
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, Indian ricegrass, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.3 to 3.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid

Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—4L
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Enko Soil

Classification: Durixerollic Calciorthids, coarse-loamy, mixed, mesic
Position on landscape: North-facing side slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of partial ballenas and inset fans
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.6 to 8.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Shoulders of partial ballenas
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the moderately steep Enko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Enko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability of the Grina Soil for Woodland
Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Enko Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Grina soil—7e, nonirrigated; the moderately steep Enko soil—6e, nonirrigated; Enko soil—6s, nonirrigated
Range site: Grina soil—025X059N; both Enko soils—025X019N; Inclusion 1—025X059N; Inclusion 2—025X019N

323—Grina-Kelk-Orovada association

Map Unit Setting

Position on landscape: Hills, piedmont slopes

Composition

Major components:
- Grina gravelly loam, 15 to 30 percent slopes (40 percent)
- Kelk silt loam, 2 to 8 percent slopes (25 percent)
- Orovada silt loam, 8 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Hunewill loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Puett sandy loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Hunnton loam, 4 to 15 percent slopes (4 percent)
- Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of hills and partial ballenas with a rock core
Parent material: Residuum derived from tuff and siltstone
Slope range: 15 to 30 percent
Elevation: 5,100 to 5,700 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 to 22 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.3 to 3.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,100 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches

Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans of hills and partial ballenas
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 8 to 15 percent
Elevation: 5,100 to 5,700 feet
Dominant present vegetation: Douglas rabbitbrush, big sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of hills and partial ballenas with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 3
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Position on landscape: Side slopes of hills and partial ballenas with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Kelk soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Orovada soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Grina Soil for Woodland

Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty, depth to rock

Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Grina soil—7e, nonirrigated; Kelk soil—6s, nonirrigated; Orovada soil—6c, nonirrigated
Range site: Grina soil—025X059N; Kelk soil—025X019N; Orovada soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X025N; Inclusion 3—025X019N; Inclusion 4—none

324—Grina-Samor association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Grina silty clay loam, 30 to 75 percent slopes (65 percent)
• Samor very gravelly loam, 50 to 75 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Karpp gravelly sandy loam, 4 to 25 percent slopes (5 percent)
• Inclusion 2: Rad silt loam, 2 to 4 percent slopes (3 percent)
• Inclusion 3: Enko silt loam, 2 to 8 percent slopes (2 percent)
• Inclusion 4: Perwick sandy loam, 8 to 15 percent slopes (5 percent)

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff and siltstone
Slope range: 30 to 75 percent
Elevation: 6,000 to 7,100 feet
Dominant present vegetation: Big sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Very rapid
Hydrologic group: D

Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—4L
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 50 to 75 percent
Elevation: 6,000 to 7,100 feet
Dominant present vegetation: Big sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Foot slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair

Suitability of the Grina Soil for Woodland
Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope

Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Grina soil—7e, nonirrigated; Samor soil—7s, nonirrigated
Range site: Grina soil—025X059N; Samor soil—025X059N; Inclusion 1—025X059N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X059N

325—Grina-Karpp-Rad association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
- Grina gravelly loam, 15 to 50 percent slopes (35 percent)
- Karpp silt loam, 4 to 15 percent slopes (35 percent)
- Rad silt loam, 2 to 8 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Perwick sandy loam, 8 to 15 percent slopes (5 percent)
- Inclusion 2: Samor very gravelly loam, 30 to 50 percent slopes (3 percent)
- Inclusion 3: Kelk silt loam, 0 to 4 percent slopes (2 percent)

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Crests and side slopes of hills
Parent material: Residuum derived from tuff and siltstone
Slope range: 15 to 50 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Big sagebrush, Indian ricegrass, Douglas rabbitbrush, Utah juniper

Climatic Data
Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile
Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 to 22 inches
Texture: Weathered bedrock

Soil and Water Features
Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.3 to 3.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Karpp Soil

Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Summits and side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over limestone alluvium
Slope range: 4 to 15 percent
Elevation: 5,200 to 6,000 feet

Dominant present vegetation: Big sagebrush, Indian ricegrass, Douglas rabbitbrush, Utah juniper

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 100 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 15 inches
Texture: Very gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 15 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.1 to 4.7 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rad Soil

Classification: Durixeroilic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 26 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Slightly hard, brittle
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 56 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 8 to 16 mmhos per cm

Depth: 56 to 62 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Foot slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 2
Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans and narrow drainageways on hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Karpp soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Rad soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Grina Soil for Woodland
Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Karpp Soil for Woodland
Site index for common trees: Utah juniper—25
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Karpp Soil for Various Uses and Practices
Range seeding: Fair—too arid, cemented pan
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Rad Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Grina soil—7e, nonirrigated; Karpp soil—7s, nonirrigated; Rad soil—6c, nonirrigated
Range site: Grina soil—025X059N; Karpp soil—025X059N; Rad soil—025X019N; Inclusion 1—025X059N; Inclusion 2—025X059N; Inclusion 3—025X019N

331—Bunky-Grina-Enko association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Bunky loam, 2 to 15 percent slopes (45 percent)
- Grina silty clay loam, 15 to 30 percent slopes (20 percent)
- Enko sandy loam, 2 to 8 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Karpp silt loam, 4 to 15 percent slopes (10 percent)
- Inclusion 2: Chiara silt loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Bunky Soil

Classification: Haploxerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 2 to 15 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 21 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Depth: 21 to 60 inches
Texture: Cemented hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.2 to 3.7 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and siltstone
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, basin wildrye, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30
Depth: 0 to 7 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.6 to 3.4 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—4L
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Slightly concave side slopes and concave foot slopes of fan piedmont remnants

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8.0 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bunky soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Enko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Bunky Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Grina Soil for Woodland

Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, slope

Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bunky soil—6s, nonirrigated; Grina soil—7e, nonirrigated; Enko soil—6s, nonirrigated
Range site: Bunky soil—025X019N; Grina soil—025X059N; Enko soil—025X019N; Inclusion 1—025X059N; Inclusion 2—025X019N

345—Perwick-Puett-Rad association

Map Unit Setting

Position on landscape: Hills, drainageways on hills

Composition

Major components:
• Perwick gravelly loam, 15 to 50 percent slopes (40 percent)
• Puett gravelly loam, 15 to 50 percent slopes (35 percent)
• Rad silt loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Hunewill gravelly loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Perwick Soil

Classification: Xeric Torriorthents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Slightly convex, lower side slopes of hills
Parent material: Residuum derived from siltstone and tuff
Slope range: 15 to 50 percent
Elevation: 5,200 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Thurber needlegrass, Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 5 to 24 inches
Texture: Loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 24 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.4 to 4.6 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—2; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex crests and upper side slopes of hills
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, Indian ricegrass, Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 1 inch
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 1 to 10 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 10 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rad Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Narrow drainageways on hills
Parent material: Loess over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Big sagebrush, basin wildrye, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 26 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 56 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 8 to 16 mmhos per cm

Depth: 56 to 62 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Summits and side slopes of fan piedmont remnants

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Perwick soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Rad soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Perwick Soil for Woodland
Site index for common trees: Utah juniper—20
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Perwick Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Puett Soil for Woodland
Site index for common trees: Utah juniper—20
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Rad Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Perwick soil—7e, nonirrigated; Puett soil—7e, nonirrigated; Rad soil—6c, nonirrigated
Range site: Perwick soil—025X059N; Puett soil—025X059N; Rad soil—025X019N; Inclusion 1—none; Inclusion 2—025X019N

367—Peeko-Hunnton-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Peeko silt loam, 2 to 8 percent slopes (35 percent)
- Hunnton loam, 4 to 15 percent slopes (30 percent)
- Puett sandy loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Chiara silt loam, 2 to 8 percent slopes (4 percent)
- Inclusion 2: Zevadez loam, 8 to 30 percent slopes (4 percent)
- Inclusion 3: Kelk silt loam, 0 to 4 percent slopes (4 percent)
- Inclusion 4: Connel sandy loam, 0 to 4 percent slopes (3 percent)

Characteristics of the Peeko Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent materiai: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Thurber needlegrass

Climatic Data
Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 8 inches
Texture: Gravelly silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 11 inches
Texture: Very gravelly silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 36 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—1; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Black sagebrush, big sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Shoulders of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Peeko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Peeko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan

Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Peeko soil—7s, nonirrigated; Hunnton soil—4e, irrigated, 6s, nonirrigated; Puett soil—7e, nonirrigated
Range site: Peeko soil—024X030N; Hunnton soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

370—Chiara-Cherry Spring-Orovada association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
- Chiara very fine sandy loam, 4 to 15 percent slopes (35 percent)
- Cherry Spring silt loam, 2 to 8 percent slopes (30 percent)
- Orovada fine sandy loam, 8 to 15 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Enko very fine sandy loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Puett sandy loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits and side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cherry Spring Soil

Classification: Haploxerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Smooth or slightly concave summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,000 to 5,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 23 to 41 inches
Texture: Cemented hardpan
Structure: Massive
Consistence: Extremely hard, very firm
Reaction: Moderately alkaline

Depth: 41 to 63 inches
Texture: Stratified sandy loam to extremely gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.7 to 4.6 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 8 to 15 percent
Elevation: 5,000 to 5,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Cherry Spring soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Cherry Spring Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Orovada Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Interpretive Groups

Capability classification: Chiara soil—4e, irrigated, 7s, nonirrigated; Cherry Spring soil—3e, irrigated, 7s,

nonirrigated; Orovada soil—4e, irrigated, 6c, nonirrigated
Range site: Chiara soil—025X019N; Cherry Spring soil—025X019N; Orovada soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X025N

371—Chiara-Bioya association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Chiara silt loam, 4 to 15 percent slopes (45 percent)
• Bioya very fine sandy loam, 2 to 8 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Grina sandy loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Orovada fine sandy loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Puett sandy loam, 15 to 30 percent slopes (3 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits and side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,600 to 5,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bioya Soil

Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,600 to 5,700 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 14 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 to 27 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 27 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle
Reaction: Moderately alkaline

Depth: 41 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 4.2 to 5.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, black sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Bioya soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Bioya Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Chiara soil—4e, irrigated, 7s, nonirrigated; Bioya soil—3e, irrigated, 7s, nonirrigated
Range site: Chiara soil—025X019N; Bioya soil—

025X019N; Inclusion 1—025X059N; Inclusion 2—025X019N; Inclusion 3—025X025N

374—Chiara-Wieland-Enko association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Chiara silt loam, 2 to 4 percent slopes (40 percent)
- Wieland loam, 4 to 15 percent slopes (30 percent)
- Enko fine sandy loam, 2 to 8 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Soughe silt loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Zevadez silt loam, 8 to 15 percent slopes (5 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm

Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants and the adjacent inset fans
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Fine sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.3 to 8.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Foot slopes of the side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous

plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Enko Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, percs slowly, slope
Terraces and diversions: Erodes easily, soil blowing

Interpretive Groups

Capability classification: Chiara soil—4e, irrigated, 7s, nonirrigated; Wieland soil—4e, irrigated, 6s, nonirrigated; Enko soil—3e, irrigated, 6s, nonirrigated
Range site: Chiara soil—025X019N; Wieland soil—025X019N; Enko soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

378—Chiara-Spilock-Kelk association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Chiara silt loam, 2 to 8 percent slopes (40 percent)
- Spilock very gravelly loam, 15 to 50 percent slopes (25 percent)
- Kelk silt loam, 8 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Aridic Duric Haploxerolls, fine-silty, mixed, mesic, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Loncan very gravelly loam, 30 to 50 percent slopes (4 percent)
- Inclusion 3: Soughe gravelly loam, 4 to 30 percent slopes (4 percent)
- Inclusion 4: Puett gravelly sandy loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F

Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Spilock Soil

Classification: Xerollic Paleorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Alluvium derived from limestone and conglomerate
Slope range: 15 to 50 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Black sagebrush, cheatgrass, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 10 to 30 inches
Texture: Indurated hardpan
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 8 to 14 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.6 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 8 to 15 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F

Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Duric Haploxerolls, fine-silty, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 4
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Spilock soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability of the Spilock Soil for Woodland
Site index for common trees: Utah juniper—25
Most important native understory plants: Black sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Spilock Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts, cemented pan
Roadfill: Poor—low strength
Topsoil: Fair—slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—cemented pan, slope
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—cemented pan, slope
Shallow excavations: Severe—cemented pan, slope
Local roads and streets: Severe—cemented pan, slope
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, cemented pan, slope
Terraces and diversions: Slope, cemented pan

Interpretive Groups

Capability classification: Chiara soil—4e, irrigated, 7s, nonirrigated; Spilock soil—7s, nonirrigated; Kelk soil—4e, irrigated, 6s, nonirrigated
Range site: Chiara soil—025X019N; Spilock soil—025X060N; Kelk soil—025X019N; Inclusion 1—025X014N; Inclusion 2—025X012N; Inclusion 3—025X059N; Inclusion 4—025X025N

379—Chiara-Kelk-Kelk, rarely flooded association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
• Chiara silt loam, 2 to 4 percent slopes (50 percent)
• Kelk silt loam, 2 to 8 percent slopes (20 percent)
• Kelk silt loam, 0 to 2 percent slopes, rarely flooded (15 percent)
Contrasting inclusions:
• Inclusion 1: Puett gravelly sandy loam, 8 to 30 percent slopes (10 percent)
• Inclusion 2: Connel sandy loam, 4 to 15 percent slopes (3 percent)
• Inclusion 3: Dacker silt loam, 2 to 4 percent slopes (2 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,500 to 5,700 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches

Water-supplying capacity: 5 to 6.5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,500 to 5,700 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rarely Flooded Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,500 to 5,700 feet
Dominant present vegetation: Big sagebrush, black greasewood, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 8 to 10 inches

Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the rarely flooded Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Rarely Flooded Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Chiara soil—4e, irrigated, 7s, nonirrigated; Kelk soil—3e, irrigated, 6s, nonirrigated; the rarely flooded Kelk soil—2s, irrigated, 6s, nonirrigated
Range site: Chiara soil—025X019N; Kelk soil—025X019N; the rarely flooded Kelk soil—024X006N;

Inclusion 1—025X025N; Inclusion 2—025X019N; Inclusion 3—025X019N

380—Chiara-Peeko-Izod association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Chiara silt loam, 2 to 8 percent slopes (35 percent)
- Peeko silt loam, 2 to 8 percent slopes (35 percent)
- Izod very gravelly loam, 30 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Gochea gravelly sandy loam, 15 to 50 percent slopes (5 percent)
- Inclusion 2: Hunnton silt loam, 4 to 15 percent slopes (5 percent)
- Inclusion 3: Puett gravelly sandy loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Peeko Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Black sagebrush, Thurber needlegrass, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 8 inches
Texture: Gravelly silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 11 inches
Texture: Very gravelly silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 36 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mixed
Position on landscape: Convex side slopes of fan piedmont remnants with a rock core
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 50 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Black sagebrush, Thurber needlegrass, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chiara soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Peeko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Peeko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Izod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chiara, Peeko, and Izod soils—7s, nonirrigated
Range site: Chiara soil—025X019N; Peeko soil—024X030N; Izod soil—024X030N; Inclusion 1—025X014N; Inclusion 2—025X019N; Inclusion 3—025X025N

400—Bilbo-Gance-Tustell association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Bilbo gravelly loam, 30 to 50 percent slopes (40 percent)
- Gance very gravelly loam, 15 to 30 percent slopes (30 percent)
- Tustell gravelly loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Yuko gravelly loam, 15 to 30 percent slopes (6 percent)
- Inclusion 2: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 15 to 50 percent slopes (5 percent)
- Inclusion 3: Connel very gravelly loamy sand, 2 to 8 percent slopes (4 percent)

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 30 to 50 percent
Elevation: 5,400 to 5,900 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline

Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex, north-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,400 to 5,900 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,900 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans and foot slopes of fan piedmont remnant side slopes
Distinctive present vegetation: Needleandthread

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—area reclaim, small stones, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Tustell Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Bilbo soil—7e, nonirrigated; Gance soil—7s, nonirrigated; Tustell soil—7s, nonirrigated
Range site: Bilbo soil—025X015N; Gance soil—025X019N; Tustell soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—024X017N

403—Bilbo-Shivlum-McIvey association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Bilbo gravelly loam, 30 to 75 percent slopes (35 percent)
- Shivlum silt loam, 15 to 30 percent slopes (30 percent)
- McIvey gravelly loam, 30 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Yuko gravelly sandy loam, 30 to 75 percent slopes (9 percent)
- Inclusion 2: Cumulic Cryaquolls, fine-loamy, mixed, 2 to 8 percent slopes (4 percent)
- Inclusion 3: Kleckner gravelly loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex, south-facing side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 30 to 75 percent
Elevation: 5,600 to 6,400 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.0 to 9 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Shivlum Soil

Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Concave, north-facing side slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess
Slope range: 15 to 30 percent
Elevation: 5,600 to 6,400 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 9 to 34 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, north-facing side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 30 to 50 percent
Elevation: 5,600 to 6,400 feet
Dominant present vegetation: Antelope bitterbrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 9.5 to 13 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Cryaquolls, fine-loamy, mixed
Position on landscape: Flood plains
Distinctive present vegetation: Quaking aspen
Inclusion 3
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Foot slopes of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Shivlum soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Poor—erodes easily

Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Shivlum Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—low strength
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bilbo soil—7e, nonirrigated; Shivlum soil—6e, nonirrigated; McIvey soil—7e, nonirrigated
Range site: Bilbo soil—025X015N; Shivlum soil—025X012N; McIvey soil—025X012N; Inclusion 1—025X015N; Inclusion 2—025X064N; Inclusion 3—025X014N

411—Bilbo-Wieland-Soughe association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Bilbo gravelly loam, 15 to 30 percent slopes (40 percent)
• Wieland very gravelly loam, 4 to 15 percent slopes (25 percent)
• Soughe very gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 2 to 8 percent slopes (6 percent)
• Inclusion 2: Rock outcrop (3 percent)
• Inclusion 3:
• Inclusion 3: Hunnton gravelly loam, 2 to 4 percent slopes (3 percent)
• Inclusion 4: Shayla very gravelly silty clay loam, 30 to 50 percent slopes (3 percent)

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.5 to 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Salinity: 0 to 2 mmhos per cm

Depth: 14 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.0 to 1.4 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans and foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None
Inclusion 3
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow
Position on landscape: Fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Soughe Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bilbo soil—7e, nonirrigated; Wieland soil—6s, nonirrigated; Soughe soil—7s, nonirrigated
Range site: Bilbo soil—025X015N; Wieland soil—025X019N; Soughe soil—025X019N; Inclusion 1—025X019N; Inclusion 2—none; Inclusion 3—025X019N; Inclusion 4—025X025N

413—Vanwyper-Bilbo-Soughe association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Vanwyper gravelly loam, 30 to 50 percent slopes (40 percent)
- Bilbo gravelly loam, 30 to 50 percent slopes (35 percent)
- Soughe very gravelly loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Eboda loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Orovada fine sandy loam, 8 to 15 percent slopes (4 percent)
- Inclusion 3: Hussa loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from shale, sandstone, and conglomerate
Slope range: 30 to 50 percent
Elevation: 5,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Concave, south-facing side slopes of hills
Parent material: Colluvium derived from shale, sandstone, and conglomerate
Slope range: 30 to 50 percent
Elevation: 5,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6 to 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,500 feet
Dominant present vegetation: Big sagebrush, rabbitbrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.0 to 1.4 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Foot slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Soughe Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Vanwyper soil—7e, nonirrigated; Bilbo soil—7e, nonirrigated; Soughe soil—7s, nonirrigated
Range site: Vanwyper soil—025X015N; Bilbo soil—025X015N; Soughe soil—025X019N; Inclusion 1—025X027N; Inclusion 2—025X019N; Inclusion 3—025X003N

414—Vanwyper-Loomis association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Vanwyper gravelly loam, 30 to 50 percent slopes (55 percent)
• Loomis very cobbly loam, 15 to 30 percent slopes (30 percent)

Contrasting inclusions:
• Inclusion 1: Quarz very gravelly loam, 4 to 15 percent slopes (7 percent)
• Inclusion 2: Humdun loam, 15 to 50 percent slopes (3 percent)
• Inclusion 3: Chiara loam, 4 to 15 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly concave, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite and andesite
Slope range: 30 to 50 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6

Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Loomis Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite and andesite
Slope range: 15 to 30 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass, Indian ricegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Very cobbly clay
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 11 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.0 to 1.9 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7

Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loomis soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Loomis Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Vanwyper soil—7e, nonirrigated; Loomis soil—7s, nonirrigated
Range site: Vanwyper soil—025X015N; Loomis soil—024X030N; Inclusion 1—025X014N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—none

415—Vanwyper-Akler-Eboda association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Vanwyper very gravelly loam, 30 to 50 percent slopes (40 percent)
• Akler cobbly clay loam, 8 to 15 percent slopes (25 percent)
• Eboda loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: McIvey gravelly loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Cotant cobbly loam, 8 to 15 percent slopes (3 percent)
• Inclusion 3: Welch loam, drained, 0 to 2 percent slopes (2 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Concave, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from shale
Slope range: 30 to 50 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from shale
Slope range: 8 to 15 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Cobbly clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Loess over residuum derived from shale
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, serviceberry, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Slightly concave areas on crests and upper side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills

Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Vanwyper soil—7s, nonirrigated; Akler soil—7s, nonirrigated; Eboda soil—6e, nonirrigated
Range site: Vanwyper soil—025X015N; Akler soil—025X018N; Eboda soil—025X027N; Inclusion 1—025X012N; Inclusion 2—025X017N; Inclusion 3—025X003N

416—Vanwyper-Roca association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Vanwyper very gravelly loam, 15 to 50 percent slopes (50 percent)
• Roca very gravelly loam, 15 to 50 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Camborthids, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Aridic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Soughe very gravelly loam, 8 to 15 percent slopes (5 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Smooth, south- and west-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 10 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north- and east-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.7 to 3.0 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south- and west-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north- and east-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Crests of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Roca soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Roca Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Vanwyper soil—7s, nonirrigated; Roca soil—7s, nonirrigated
Range site: Vanwyper soil—025X015N; Roca soil—025X014N; Inclusion 1—025X014N; Inclusion 2—025X014N; Inclusion 3—025X019N

417—Vanwyper-Linkup-Loomis association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Vanwyper very cobbly loam, 15 to 50 percent slopes (35 percent)
• Linkup very gravelly loam, 8 to 15 percent slopes (30 percent)
• Loomis very cobbly loam, 8 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Argixerolls, fine-loamy, mixed, frigid, 4 to 8 percent slopes (8 percent)
• Inclusion 2: Roca gravelly loam, 15 to 30 percent slopes (7 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 15 to 50 percent
Elevation: 5,400 to 6,600 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 8 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Linkup Soil

Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 8 to 15 percent
Elevation: 5,400 to 6,600 feet
Dominant present vegetation: Low sagebrush, bottlebrush squirreltail, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 40

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 8 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 16 inches
Texture: Gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 16 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.9 to 2.9 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Loomis Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 8 to 15 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Very cobbly clay
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 11 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.0 to 1.9 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Linkup soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loomis soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, low strength, large stones
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Linkup Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loomis Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Vanwyper, Linkup, and Loomis soils—7s, nonirrigated
Range site: Vanwyper soil—025X015N; Linkup soil—025X018N; Loomis soil—024X030N; Inclusion 1—025X014N; Inclusion 2—025X014N

418—Vanwyper-Connel-Hunewill association

Map Unit Setting

Position on landscape: Piedmont slopes

Composition

Major components:
• Vanwyper very gravelly loamy coarse sand, 30 to 50 percent slopes (35 percent)
• Connel fine sandy loam, 0 to 4 percent slopes (30 percent)
• Hunewill gravelly coarse sandy loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Wieland gravelly loam, 4 to 15 percent slopes (4 percent)
• Inclusion 2: Bioya sandy loam, 2 to 4 percent slopes (4 percent)
• Inclusion 3: Puett gravelly loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of partial ballenas with a rock core
Parent material: Residuum and colluvium derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, basin wildrye, Indian ricegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Very gravelly loamy coarse sand
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 24 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.05; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Connel Soil

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 4 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Stratified very gravelly coarse sand to extremely gravelly loamy sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly coarse sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.5 to 4.5 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Relict summit areas of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Convex relict summit areas of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Eroded side slopes of partial pallenas with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Connel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hunewill soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Connel Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Vanwyper soil—7s, nonirrigated; Connel soil—7c, nonirrigated; Hunewill soil—6e, nonirrigated
Range site: Vanwyper soil—025X015N; Connel soil—025X019N; Hunewill soil—024X017N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X025N

431—Gance-Shayla-Roca association

Map Unit Setting

Position on landscape: Fan piedmont remnants, hills

Composition

Major components:
• Gance very gravelly loam, 15 to 30 percent slopes (40 percent)
• Shayla very gravelly silty clay loam, 30 to 50 percent slopes (25 percent)
• Roca very gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Loncan very gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (3 percent)
• Inclusion 3: Alburz very gravelly loam, 0 to 2 percent slopes, rarely flooded (3 percent)
• Inclusion 4: Xerollic Haplargids, fine, montmorillonitic, mesic, 4 to 15 percent slopes (4 percent)

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Shayla Soil

Classification: Typic Torriorthents, loamy-skeletal, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 5,900 to 6,600 feet
Dominant present vegetation: Black sagebrush, Wyoming big sagebrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly silty clay loam
Structure: Subangular blocky
Consistence: Soft, very friable

Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 13 inches
Texture: Very gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 13 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 15 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.9 inch to 1.3 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Roca Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 5,900 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.7 to 3.0 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 2
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Xerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Crests of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Gance soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Shayla soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Roca soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Gance Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—area reclaim, small stones, slope
Daily cover for landfill: Poor—area reclaim, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Shayla Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Roca Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gance, Shayla, and Roca soils—7s, nonirrigated
Range site: Gance soil—025X019N; Shayla soil—025X025N; Roca soil—025X014N; Inclusion 1—025X012N; Inclusion 2—none; Inclusion 3—025X003N; Inclusion 4—025X018N

432—Gance-Chiara-Hunnton association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Gance very gravelly loam, 15 to 50 percent slopes (35 percent)
- Chiara silt loam, 4 to 8 percent slopes (25 percent)
- Hunnton silt loam, 4 to 8 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Wieland silt loam, 4 to 15 percent slopes (7 percent)
- Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (4 percent)
- Inclusion 3: Bioya silt loam, 2 to 4 percent slopes (4 percent)

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 50 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, scattered Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 8 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 8 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Gance soil—7s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Hunnton soil—4e, irrigated, 6s, nonirrigated
Range site: Gance soil—025X019N; Chiara soil—025X019N; Hunnton soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

440—Devilsgait-Woofus-Devilsgait, gravelly substratum association

Map Unit Setting

Position on landscape: Basin floors

Composition

Major components:
• Devilsgait silt loam, 0 to 2 percent slopes (40 percent)
• Woofus silty clay loam, 0 to 2 percent slopes (25 percent)
• Devilsgait silt loam, gravelly substratum, 0 to 2 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Ocala silt loam, slightly saline, 0 to 2 percent slopes (7 percent)
• Inclusion 2: Woofus silty clay loam, 0 to 2 percent slopes, ponded (3 percent)
• Inclusion 3: Sonoma silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Tweba very fine sandy loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 5,400 feet
Dominant present vegetation: Basin wildrye, Nevada bluegrass, creeping wildrye, sedge, rush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10.3 to 11 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Woofus Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Natural levees on the flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 5,400 feet
Dominant present vegetation: Basin wildrye, Nevada bluegrass, creeping wildrye, sedge, rush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 30 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified loamy fine sand to gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 24 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 7.2 to 9.5 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Devilsgait Soil, Gravelly Substratum

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,000 to 5,400 feet
Dominant present vegetation: Basin wildrye, Nevada bluegrass, creeping wildrye, sedge, rush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 13 to 42 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 42 to 54 inches
Texture: Stratified gravelly silt loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 54 to 63 inches
Texture: Extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 11.5 inches
Water-supplying capacity: 9.0 to 13 inches
Runoff: Slow
Hydrologic group: D

Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats adjacent to fan piedmont remnants
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Lower areas on the flood plains
Distinctive present vegetation: Basin wildrye

Inclusion 3
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 4
Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Slightly higher areas on the flood plains
Distinctive present vegetation: Basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Woofus soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair
Suitability of the Devilsgait soil, gravelly substratum, for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Woofus Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Fair—area reclaim, too clayey, small stones
Daily cover for landfill: Poor—seepage, too sandy, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping, wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, frost action, cutbanks cave
Irrigation: Wetness, rooting depth, flooding
Terraces and diversions: Wetness, too sandy

Suitability and Limitations of the Devilsgait Soil, Gravelly Substratum, for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Devilsgait soil—5w, irrigated, 6w, nonirrigated; Woofus soil—5w, irrigated and nonirrigated; Devilsgait soil, gravelly substratum—5w irrigated and nonirrigated
Range site: Both Devilsgait soils—025X001N; Woofus soil—025X001N; Inclusion 1—024X007N; Inclusion 2—025X001N; Inclusion 3—024X006N; Inclusion 4—025X001N

441—Devilsgait-Devilsgait, frequently flooded-Ocala association

Map Unit Setting

Position on landscape: Flood plains, alluvial flats

Composition

Major components:
• Devilsgait silt loam, drained, 0 to 2 percent slopes (40 percent)
• Devilsgait silt loam, 0 to 2 percent slopes, frequently flooded (25 percent)
• Ocala silt loam, 0 to 2 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 0 to 2 percent slopes (10 percent)
• Inclusion 2: Zevadez sandy loam, 4 to 8 percent slopes (5 percent)

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 11.5 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Frequently Flooded Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Creeping wildrye, basin wildrye, rush, willow

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10.3 to 11 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,500 feet
Dominant present vegetation: Rubber rabbitbrush, black greasewood, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 12 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs

(nonirrigated)—poor; wetland plants—poor; shallow water areas—poor
Suitability of the frequently flooded Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, erodes easily, flooding
Terraces and diversions: Erodes easily, soil blowing

Suitability and Limitations of the Frequently Flooded Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, too crusty
Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Devilsgait soil—3w, irrigated, 6w, nonirrigated; the frequently flooded Devilsgait soil—5w, irrigated, 6w, nonirrigated; Ocala soil—4w, irrigated, 6w, nonirrigated
Range site: Devilsgait soil—025X003N; the frequently flooded Devilsgait soil—025X001N; Ocala soil—024X007N; Inclusion 1—024X006N; Inclusion 2—025X019N

442—Devilsgait-Crooked Creek association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Devilsgait silt loam, 0 to 2 percent slopes (50 percent)
• Crooked Creek silty clay loam, 0 to 2 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Alburz loam, 0 to 2 percent slopes (10 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (3 percent)
• Inclusion 3: Ocala silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Basin big sagebrush, Nevada bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Basin big sagebrush, Nevada bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 6.8 to 7.4 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Natural levees on the flood plains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass

Inclusion 3
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, alkali sacaton

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack
Shallow excavations: Moderate—too clayey, wetness
Local roads and streets: Severe—low strength, frost action, shrink-swell potential
Pond reservoir areas: Slight
Embankments, dikes, and levees: Moderate—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Devilsgait soil—3c, irrigated, 6c, nonirrigated; Crooked Creek soil—3w, irrigated, 6w, nonirrigated
Range site: Devilsgait soil—025X003N; Crooked Creek soil—025X003N; Inclusion 1—025X003N; Inclusion 2—025X005N; Inclusion 3—024X007N

443—Devilsgait-Sonoma association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
- Devilsgait silt loam, 0 to 2 percent slopes (45 percent)
- Sonoma silt loam, 0 to 2 percent slopes (40 percent)

Contrasting inclusions:
- Inclusion 1: Sonoma silt loam, drained, 0 to 2 percent slopes (7 percent)
- Inclusion 2: Devilsgait silt loam, 0 to 2 percent slopes, rarely flooded (5 percent)
- Inclusion 3: Sonoma silt loam, 0 to 2 percent slopes, occasionally flooded (3 percent)

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Lower areas on the flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Nevada bluegrass, wildrye, rush, willow

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Sonoma Soil

Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Higher areas on the flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Nevada bluegrass, wildrye, rush, willow

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 11 to 62 inches
Texture: Stratified silt loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm
Sodicity (SAR): 0 to 5

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequency—frequent; duration—brief to long; months—February through June
Permeability: Moderately slow
Available water capacity: 11 to 12.5 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye

Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs

(nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Sonoma soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Sonoma Soil for Various Uses and Practices

Range seeding: Poor—excess salts
Roadfill: Poor—low strength
Topsoil: Fair—excess salts
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Devilsgait soil—5w, irrigated, 6w, nonirrigated; Sonoma soil—3w, irrigated, 6w, nonirrigated
Range site: Devilsgait soil—025X001N; Sonoma soil—025X001N; Inclusion 1—024X007N; Inclusion 2—025X003N; Inclusion 3—024X006N

447—Donna gravelly loam, 2 to 8 percent slopes

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major component:
• Donna gravelly loam, 2 to 8 percent slopes (90 percent)
Contrasting inclusions:
• Inclusion 1: Crooked Creek silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Kleckner gravelly loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Low sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Alpine timothy, Nevada bluegrass
Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated
Range site: Donna soil—025X018N; Inclusion 1—025X006N; Inclusion 2—025X014N

448—Donna-Stampede-Quarz association

Map Unit Setting

Position on landscape: Fan piedmont remnants, hills

Composition

Major components:
• Donna gravelly loam, 2 to 8 percent slopes (40 percent)
• Stampede gravelly loam, 4 to 15 percent slopes (30 percent)
• Quarz very gravelly loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Welch silt loam, 2 to 8 percent slopes (4 percent)
• Inclusion 3: Hunnton very gravelly loam, 4 to 15 percent slopes (4 percent)
• Inclusion 4: Gance very gravelly loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave foot slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay

Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains next to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Alpine timothy, Nevada bluegrass
Inclusion 3
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Summits and side slopes of fan piedmont remnants in the lower areas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Stampede soil—6s, nonirrigated; Quarz soil—7s, nonirrigated
Range site: Donna soil—025X018N; Stampede soil—025X014N; Quarz soil—025X014N; Inclusion 1—025X003N; Inclusion 2—025X006N; Inclusion 3—025X019N; Inclusion 4—025X019N

449—Donna-Stampede-Short Creek association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna gravelly loam, 2 to 8 percent slopes (40 percent)
• Stampede gravelly loam, 4 to 15 percent slopes (25 percent)
• Short Creek gravelly clay loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Cotant gravelly loam, 2 to 15 percent slopes (5 percent)
• Inclusion 2: Sumine very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 30 to 50 percent
Elevation: 5,500 to 6,000 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.6 to 5.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Side slopes of hills
Distinctive present vegetation: Mountain big sagebrush
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Short Creek Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Stampede soil—6s, nonirrigated; Short Creek soil—7e, nonirrigated
Range site: Donna soil—025X018N; Stampede soil—025X014N; Short Creek soil—025X015N; Inclusion 1—025X017N; Inclusion 2—025X009N; Inclusion 3—025X003N

452—Donna-Bilbo-Stampede association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna gravelly loam, 4 to 15 percent slopes (45 percent)
• Bilbo very gravelly loam, 15 to 30 percent slopes (30 percent)
• Stampede gravelly loam, 4 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Alburz very gravelly loam, 0 to 2 percent slopes (4 percent)
• Inclusion 2: Hussa silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 3: Crooked Creek silty clay loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: McIvey gravelly silt loam, 15 to 50 percent slopes (2 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Sandberg bluegrass

Climatic Data
Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile
Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.4 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 8 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass
Inclusion 4
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Bilbo soil—7s, nonirrigated; Stampede soil—6s, nonirrigated
Range site: Donna soil—025X018N; Bilbo soil—025X015N; Stampede soil—025X014N; Inclusion 1—025X003N; Inclusion 2—025X005N; Inclusion 3—025X005N; Inclusion 4—025X012N

454—Donna-Short Creek-Kleckner association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna gravelly loam, 2 to 8 percent slopes (35 percent)
• Short Creek very cobbly loam, 30 to 50 percent slopes (25 percent)
• Kleckner gravelly silt loam, 15 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Donna gravelly loam, 8 to 15 percent slopes (10 percent)
• Inclusion 2: McIvey gravelly silt loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Webber ricegrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 30 to 50 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Percent stones and boulders on the surface: 15
Percent cobbles on the surface: 30
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.3 to 5.6 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, lupine

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.6 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave, upper side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Short Creek Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Short Creek soil—7s, nonirrigated; Kleckner soil—7e, nonirrigated
Range site: Donna soil—025X0018N; Short Creek soil—025X015N; Kleckner soil—025X014N; Inclusion 1—025X018N; Inclusion 2—025X012N

455—Donna-Kleckner-Donna, strongly sloping association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna gravelly loam, 2 to 8 percent slopes (40 percent)
• Kleckner gravelly silt loam, 4 to 15 percent slopes (25 percent)
• Donna gravelly loam, 8 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Stampede gravelly loam, 2 to 8 percent slopes (7 percent)
• Inclusion 2: Eboda loam, 4 to 15 percent slopes (4 percent)
• Inclusion 3: McIvey gravelly silt loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Webber ricegrass

Climatic Data
Average annual precipitation: About 11 inches

Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.6 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Strongly Sloping Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of fan piedmont remnants

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Webber ricegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Idaho fescue
Inclusion 3
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the strongly sloping Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small stones, slope
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, shrink-swell potential, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Strongly Sloping Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Donna soils—7s, nonirrigated; Kleckner soil—6s, nonirrigated
Range site: Both Donna soils—025X018N; Kleckner soil—025X014N; Inclusion 1—025X014N; Inclusion 2—025X027N; Inclusion 3—025X012N; Inclusion 4—025X005N

456—Donna-Stampede-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna gravelly loam, 2 to 8 percent slopes (45 percent)
• Stampede gravelly loam, 4 to 15 percent slopes (30 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
• Inclusion 1: Welsum loam, 0 to 2 percent slopes (3 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Smooth or slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,600 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow

Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits and smooth, upper side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,600 to 6,600 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15
Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,600 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow

Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, sedge

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Probable source

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—excess fines
Gravel: Probable source

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Stampede soil—6s, nonirrigated; Gance soil—7s, nonirrigated
Range site: Donna soil—025X018N; Stampede soil—025X014N; Gance soil—025X019N; Inclusion 1—025X005N; Inclusion 2—025X005N

457—Donna-Gochea-Kleckner association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Donna very cobbly loam, 4 to 15 percent slopes (35 percent)
• Gochea loam, 4 to 15 percent slopes (30 percent)
• Kleckner very cobbly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: McIvey very cobbly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Cotant very cobbly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 0 to 2 percent slopes (5 percent)

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified very gravelly sandy loam to very gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.6 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9.5 to 11 inches
Runoff: Medium

Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.6 to 8.0 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Upper, north-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gochea soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gochea Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Donna soil—7s, nonirrigated; Gochea soil—6c, nonirrigated; Kleckner soil—7s, nonirrigated
Range site: Donna soil—025X018N; Gochea soil—025X014N; Kleckner soil—025X014N; Inclusion 1—025X012N; Inclusion 2—025X017N; Inclusion 3—025X003N

460—Stampede-Betra-McIvey association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede loam, 2 to 15 percent slopes (35 percent)
• Betra cobbly loam, 4 to 15 percent slopes (30 percent)
• McIvey gravelly loam, 2 to 15 percent slopes (20 percent)

Contrasting inclusions:
• Inclusion 1: McIvey very cobbly loam, 8 to 15 percent slopes (10 percent)
• Inclusion 2: McIvey gravelly loam, 8 to 15 percent slopes, stony (5 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 15 percent
Elevation: 6,100 to 6,600 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 11 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight

Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Betra Soil

Classification: Abruptic Aridic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,600 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 9 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 21 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 21 to 42 inches
Texture: Cemented hardpan

Soil and Water Features

Depth to a hardpan: 20 to 30 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.0 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 15 percent
Elevation: 6,100 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches

Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Betra soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the McIvey soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Betra Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Slope, large stones, cemented pan

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, large stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, frost action, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Large stones, droughty, percs slowly
Terraces and diversions: Slope, large stones, percs slowly

Interpretive Groups

Capability classification: Stampede soil—4e, irrigated, 6s, nonirrigated; Betra soil—4e, irrigated, 7s, nonirrigated; McIvey soil—4e, irrigated, 6c, nonirrigated
Range site: Stampede soil—025X014N; Betra soil—025X017N; McIvey soil—025X012N; Inclusion 1—025X012N; Inclusion 2—025X012N

461—Stampede-Kleckner association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede loam, 4 to 15 percent slopes (60 percent)
• Kleckner very gravelly silty loam, 4 to 15 percent slopes (30 percent)
Contrasting inclusions:
• Inclusion 1: Fulstone gravelly loam, 4 to 15 percent slopes (7 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 11 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Gravelly clay loam
Structure: Subangular blocky

Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.6 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Low sagebrush
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small stones, slope
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, shrink-swell potential, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Stampede soil—4e, irrigated, 6s, nonirrigated; Kleckner soil—6s, nonirrigated
Range site: Stampede soil—025X014N; Kleckner soil—025X014N; Inclusion 1—025X018N; Inclusion 2—025X003N

462—Stampede-Donna-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede gravelly loam, 4 to 15 percent slopes (35 percent)
• Donna gravelly loam, 4 to 15 percent slopes (25 percent)
• Bilbo gravelly loam, 15 to 30 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Puett loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Roca very gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Aridic Argixerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes (5 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches

Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 7 to 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: South-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Stampede soil—6s, nonirrigated; Donna soil—7s, nonirrigated; Bilbo soil—7e, nonirrigated
Range site: Stampede soil—025X014N; Donna soil—025X018N; Bilbo soil—025X015N; Inclusion 1—025X025N; Inclusion 2—025X014N; Inclusion 3—025X014N

465—Stampede-Gochea-Zevadez association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Stampede gravelly loam, 2 to 8 percent slopes (50 percent)
- Gochea gravelly loam, 8 to 15 percent slopes (25 percent)
- Zevadez gravelly loam, 30 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Shivlum silt loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Kleckner gravelly loam, 4 to 15 percent slopes (4 percent)
- Inclusion 3: Alburz gravelly loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, crested wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 8 to 15 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, crested wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 7.0 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—4; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 30 to 50 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.2 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Foot slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits and smooth, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Gochea Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, rooting depth, slope
Terraces and diversions: Slope, too sandy

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—slope
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Stampede soil—4e, irrigated, 6s, nonirrigated; Gochea soil—4e, irrigated, 6c, nonirrigated; Zevadez soil—7e, nonirrigated
Range site: Stampede soil—025X014N; Gochea soil—025X014N; Zevadez soil—025X015N; Inclusion 1—025X012N; Inclusion 2—025X014N; Inclusion 3—025X003N

466—Stampede-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede gravelly loam, 4 to 15 percent slopes (60 percent)
• Bilbo very gravelly loam, 15 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Donna gravelly loam, 4 to 15 percent slopes (7 percent)
• Inclusion 2: McIvey very gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 3: Wieland gravelly loam, 2 to 8 percent slopes (2 percent)
• Inclusion 4: Puett gravelly sandy loam, 15 to 50 percent slopes (2 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Low sagebrush

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants in the lower areas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Stampede soil—4e, irrigated, 6s, nonirrigated; Bilbo soil—7s, nonirrigated

Range site: Stampede soil—025X014N; Bilbo soil—025X015N; Inclusion 1—025X018N; Inclusion 2—025X012N; Inclusion 3—025X019N; Inclusion 4—025X025N

467—Stampede-Donna-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Stampede gravelly loam, 2 to 4 percent slopes (35 percent)
- Donna gravelly loam, 4 to 15 percent slopes (30 percent)
- Gance very cobbly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Loncan Variant loam, 2 to 8 percent slopes (5 percent)
- Inclusion 2: Dewar silt loam, 2 to 4 percent slopes (5 percent)
- Inclusion 3: Kelk silt loam, 2 to 4 percent slopes (5 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,800 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits and smooth, upper side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,000 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,800 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 30
Percent pebbles on the surface: 30

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Duric Hapoxerolls, fine-loamy, mixed, mesic
Position on landscape: Inset fans next to stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants in the lower areas
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic

Position on landscape: Inset fans adjacent to fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gance Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Stampede soil—6s, nonirrigated; Donna soil—7s, nonirrigated; Gance soil—7s, nonirrigated
Range site: Stampede soil—025X014N; Donna soil—025X018N; Gance soil—025X019N; Inclusion 1—025X003N; Inclusion 2—025X019N; Inclusion 3—025X019N

469—Stampede-Donna association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede gravelly loam, 4 to 15 percent slopes (45 percent)
• Donna gravelly loam, 2 to 8 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Short Creek gravelly clay loam, 15 to 50 percent slopes (9 percent)
• Inclusion 2: Aridic Argixerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes (3 percent)
• Inclusion 3: Pachic Argixerolls, fine, montmorillonitic, frigid, 8 to 15 percent slopes (2 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (1 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Convex summits and upper side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches

Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Stampede soil—6s, nonirrigated; Donna soil—7s, nonirrigated
Range site: Stampede soil—025X014N; Donna soil—025X018N; Inclusion 1—025X015N; Inclusion 2—025X014N; Inclusion 3—025X027N; Inclusion 4—025X003N

470—Stampede-Puett-Peeko association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Stampede Gravelly loam, 4 to 8 percent slopes (40 percent)
• Puett gravelly fine sandy loam, 15 to 30 percent slopes (25 percent)
• Peeko silt loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Yuko gravelly loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Izod very gravelly loam, 8 to 15 percent slopes (3 percent)

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, upper parts of summits on fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 8 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Nevada bluegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed, (calcareous) mesic, shallow
Position on landscape: Eroded side slopes of fan piedmont remnants
Parent material: Residuum derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Black sagebrush, big sagebrush, Indian ricegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Peeko Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Smooth, lower parts of summits on fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,700 to 5,900 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Thurber needlegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Silt loam

Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 8 inches
Texture: Gravelly silty loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 11 inches
Texture: Very gravelly silty loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 36 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—1; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Foot slopes of hills
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Peeko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Peeko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones

Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Stampede soil—6s, nonirrigated; Puett soil—7e, nonirrigated; Peeko soil—7s, nonirrigated
Range site: Stampede soil—025X014N; Puett soil—025X025N; Peeko soil—024X030N; Inclusion 1—025X019N; Inclusion 2—025X014N; Inclusion 3—024X030N

477—Hunnton-Dacker association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Hunnton loam, 4 to 15 percent slopes (50 percent)
• Dacker silt loam, 2 to 8 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Chiara silt loam, 2 to 8 percent slopes (7 percent)
• Inclusion 2: Gance very gravelly loam, 8 to 15 percent slopes (5 percent)
• Inclusion 3: Norfork cobbly silty clay loam, 4 to 15 percent slopes (2 percent)
• Inclusion 4: Kelk silt loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic

Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Inclusion 4
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Dacker soil—3e, irrigated, 6s, nonirrigated
Range site: Hunnton soil—025X019N; Dacker soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—024X030N; Inclusion 4—024X006N

478—Hunnton-Wieland-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Hunnton loam, 2 to 8 percent slopes (35 percent)
- Wieland gravelly loam, 4 to 15 percent slopes (30 percent)
- Bilbo very gravelly loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Kleckner very gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Connel loam, 0 to 4 percent slopes (4 percent)
- Inclusion 3: Hunewill coarse sandy loam, 4 to 15 percent slopes (3 percent)
- Inclusion 4: Hunewill loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive

Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex summits and smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: North-facing foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, needleandthread
Inclusion 4
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: South-facing foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Wieland soil—6s, nonirrigated; Bilbo soil—7s, nonirrigated
Range site: Hunnton soil—025X019N; Wieland soil—025X019N; Bilbo soil—025X015N; Inclusion 1—025X014N; Inclusion 2—025X019N; Inclusion 3—024X017N; Inclusion 4—025X019N

479—Hunnton-Wieland-Bloor association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
• Hunnton silt loam, 2 to 8 percent slopes (35 percent)
• Wieland silt loam, 2 to 8 percent slopes (35 percent)
• Bloor silt loam, 0 to 2 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Nadurargids, fine, montmorillonitic, mesic, 0 to 2 percent slopes (7 percent)
• Inclusion 2: Alburz loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, Very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bloor Soil

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Parent material: Mixed alluvium influenced by loess
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 0 to 10

Depth: 8 to 20 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 46 to 70

Depth: 20 to 42 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Very strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 42 to 60 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Very strongly alkaline
Salinity: More than 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 60 to 72 inches
Flooding: Frequency—rare
Permeability: Slow
Available water capacity: 4.7 to 7.3 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Nadurargids, fine, montmorillonitic, mesic
Position on landscape: Concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Alpine timothy, Nevada bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Bloor soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—very poor; shrubs (nonirrigated)—very poor; wetland plants—fair; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Bloor Soil for Various Uses and Practices
Range seeding: Poor—excess salts, excess sodium
Roadfill: Good
Topsoil: Poor—excess salts
Daily cover for landfill: Good
Shallow excavations: Moderate—wetness
Local roads and streets: Moderate—flooding, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, excess salts
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Wieland soil—3e, irrigated, 6s, nonirrigated; Bloor soil—6s, irrigated, 7s, nonirrigated
Range site: Hunnton soil—025X019N; Wieland soil—025X019N; Bloor soil—024X006N; Inclusion 1—025X019N; Inclusion 2—025X006N

480—Hunnton-Wieland-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Hunnton loam, 2 to 4 percent slopes (35 percent)
• Wieland loam, 4 to 15 percent slopes (35 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Orovada silt loam, 8 to 15 percent slopes (5 percent)
• Inclusion 2: Puett silt loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Chiara loam, 2 to 8 percent slopes (3 percent)
• Inclusion 4: Kelk silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Black sagebrush, Wyoming big sagebrush, spiny hopsage
Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, pasture, hayland
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Wieland soil—4e, irrigated, 6s, nonirrigated; Gance soil—7s, nonirrigated
Range site: Hunnton soil—025X019N; Wieland soil—025X019N; Gance soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X025N; Inclusion 3—025X019N; Inclusion 4—025X019N

481—Hunnton-Chiara association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Hunnton silt loam, 2 to 8 percent slopes (60 percent)
- Chiara silt loam, 2 to 8 percent slopes (30 percent)

Contrasting inclusions:
- Inclusion 1: Enko sandy loam, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Wieland silt loam, 8 to 15 percent slopes (5 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky

Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 20 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 2
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated
Range site: Hunnton soil—025X019N; Chiara soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

482—Hunnton-Wieland-Hunnton, gravelly association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Hunnton loam, 4 to 15 percent slopes (35 percent)
- Wieland very gravelly loam, 15 to 30 percent slopes (35 percent)
- Hunnton gravelly loam, 2 to 4 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Puett loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Gance very gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Kelk silt loam, 0 to 2 percent slopes (3 percent)
- Inclusion 4: Bloor silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gravelly Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.9 inches
Water-supplying capacity: 7 to 8 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic

Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the gravelly Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gravelly Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Both Hunnton soils—4e, irrigated, 6s, nonirrigated; Wieland soil—6s, nonirrigated
Range site: Both Hunnton soils—025X019N; Wieland soil—025X019N; Inclusion 1—025X025N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—024X007N

485—Hunnton-Wieland-Wieland, moderately steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Hunnton loam, 2 to 8 percent slopes (45 percent)

• Wieland silt loam, 2 to 8 percent slopes (25 percent)
• Wieland gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Enko sandy loam, 0 to 4 percent slopes (7 percent)
• Inclusion 2: Chiara silt loam, 2 to 4 percent slopes (5 percent)
• Inclusion 3: Bloor silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Gochea silt loam, 30 to 50 percent slopes (1 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Fan skirts

Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye

Inclusion 4

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid

Position on landscape: Concave side slopes of fan piedmont remnants and the adjacent hills

Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Cropland, hayland, pasture

Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability of the moderately steep Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid

Roadfill: Poor—cemented pan

Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—cemented pan, seepage, small stones

Shallow excavations: Severe—cemented pan, cutbanks cave

Local roads and streets: Severe—low strength, shrink-swell potential

Pond reservoir areas: Moderate—seepage, cemented pan, slope

Embankments, dikes, and levees: Severe—seepage

Sand: Probable source

Gravel: Probable source

Drainage: Deep to water

Irrigation: Percs slowly, cemented pan, slope

Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid

Roadfill: Good

Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—small stones

Shallow excavations: Moderate—too clayey

Local roads and streets: Severe—low strength, shrink-swell potential

Pond reservoir areas: Moderate—seepage, slope

Embankments, dikes, and levees: Moderate—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Drainage: Deep to water

Irrigation: Percs slowly, slope, erodes easily

Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Moderately Steep Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid, erodes easily

Roadfill: Fair—slope

Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—small stones, slope

Shallow excavations: Severe—slope

Local roads and streets: Severe—low strength, slope, shrink-swell potential

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Moderate—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Wieland soil—3e, irrigated, 6s, nonirrigated; the moderately steep Wieland soil—6e, nonirrigated

Range site: Hunnton soil—025X019N; both Wieland soils—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—024X006N; Inclusion 4—025X014N

486—Hunnton-Chiara-Wieland association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:

- Hunnton silt loam, 2 to 8 percent slopes (40 percent)
- Chiara silt loam, 2 to 8 percent slopes (30 percent)
- Wieland silt loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:

- Inclusion 1: Enko sandy loam, 2 to 8 percent slopes (9 percent)
- Inclusion 2: Stampede silt loam, 2 to 8 percent slopes (6 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic

Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock. More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, thickspike wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches

Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans and foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Summits of fan piedmont remnants in the higher areas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Wieland soil—4e, irrigated, 6s, nonirrigated
Range site: Hunnton soil—025X019N; Chiara soil—025X019N; Wieland soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X014N

489—Hunnton-Wieland-Bioya association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Hunnton loam, 2 to 8 percent slopes (35 percent)
- Wieland loam, 2 to 8 percent slopes (30 percent)
- Bioya loam, 2 to 8 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Chiara loam, 2 to 4 percent slopes (5 percent)
- Inclusion 2: Gance very gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Grina gravelly loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam

Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bioya Soil

Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants

Parent material: Loess over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 14 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 to 27 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 27 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle
Reaction: Moderately alkaline

Depth: 41 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 4.2 to 5.7 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Utah juniper
Other inclusions of minor extent
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Location: Near Lee
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Bioya soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Bioya Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Hunnton soil—4e, irrigated, 6s, nonirrigated; Wieland soil—3e, irrigated, 6s, nonirrigated; Bioya soil—3e, irrigated, 7s, nonirrigated
Range site: Hunnton soil—025X019N; Wieland soil—025X019N; Bioya soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X059N

490—Orovada-Bioya-Haybourne association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Orovada fine sandy loam, 4 to 15 percent slopes (35 percent)
• Bioya very fine sandy loam, 2 to 4 percent slopes (30 percent)
• Haybourne sandy loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Puett gravelly sandy loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Chiara loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam

Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bioya Soil

Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Loess over mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 14 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 to 27 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 27 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle
Reaction: Moderately alkaline

Depth: 41 to 60 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 4.2 to 5.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Haybourne Soil

Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 35 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 35 to 60 inches
Texture: Stratified gravelly coarse sand to fine sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 5.1 to 6.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Inclusion 2

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Bioya soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Haybourne soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Suitability and Limitations of the Bioya Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—cemented pan
Topsoil: Fair—cemented pan, thin layer
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Haybourne Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Fair—slope
Topsoil: Poor—small stones
Daily cover for landfill: Poor—too sandy, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, slope
Terraces and diversions: Slope, too sandy

Interpretive Groups

Capability classification: Orovada soil—4e, irrigated, 6c, nonirrigated; Bioya soil—3e, irrigated, 7s, nonirrigated; Haybourne soil—6e, irrigated, 6c, nonirrigated
Range site: Orovada soil—025X019N; Bioya soil—025X019N; Haybourne soil—025X019N; Inclusion 1—025X025N; Inclusion 2—025X019N

491—Orovada-Puett association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
• Orovada loam, 4 to 15 percent slopes (50 percent)
• Puett fine sandy loam, 15 to 30 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Connel coarse sandy loam, 2 to 8 percent slopes (4 percent)
• Inclusion 2: Kelk silt loam, 2 to 8 percent slopes (4 percent)
• Inclusion 3: Chiara silt loam, 2 to 8 percent slopes (4 percent)
• Inclusion 4: Zevadez sandy loam, 8 to 15 percent slopes (3 percent)

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of partial ballenas with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,500 feet

Dominant present vegetation: Big sagebrush, black sagebrush, antelope bitterbrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Foot slopes of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Relict summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Orovada soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Orovada soil—6c, nonirrigated; Puett soil—7e, nonirrigated

Range site: Orovada soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

492—Orovada-Humdun-Puett association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
- Orovada fine sandy loam, 4 to 15 percent slopes (35 percent)
- Humdun loam, 15 to 30 percent slopes (30 percent)
- Puett fine sandy loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Grina sandy loam, 15 to 50 percent slopes (7 percent)
- Inclusion 2: Xerollic Camborthids, coarse-loamy, mixed, frigid, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Chiara loam, 2 to 8 percent slopes (3 percent)

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Humdun Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 15 to 30 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 29 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 29 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 2 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 10 to 11.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, black sagebrush, antelope bitterbrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core and the adjacent hills
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 2
Classification: Xerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Orovada soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Humdun soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Orovada Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Humdun Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Fair—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Orovada soil—6c, nonirrigated; Humdun soil—6e, nonirrigated; Puett soil—7e, nonirrigated
Range site: Orovada soil—025X019N; Humdun soil—025X019N; Puett soil—025X025N; Inclusion 1—025X059N; Inclusion 2—025X014N; Inclusion 3—025X019N

494—Orovada-Puett-Chiara association

Map Unit Setting

Position on landscape: Fan piedmonts

Composition

Major components:
- Orovada fine sandy loam, 4 to 15 percent slopes (45 percent)
- Puett sandy loam, 15 to 30 percent slopes (20 percent)
- Chiara silt loam, 2 to 8 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Enko fine sandy loam, 0 to 4 percent slopes (4 percent)
- Inclusion 2: Zevadez loamy fine sand, 4 to 15 percent slopes (4 percent)
- Inclusion 3: Haybourne coarse sandy loam, 8 to 15 percent slopes (4 percent)
- Inclusion 4: Bioya loam, 2 to 8 percent slopes (3 percent)

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Wyoming big sagebrush, black sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,300 to 5,500 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Orovada Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water

Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Orovada soil—4e, irrigated, 6c, nonirrigated; Puett soil—7e, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated
Range site: Orovada soil—025X019N; Puett soil—025X025N; Chiara soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

496—Orovada-Grina-Upsteer association

Map Unit Setting

Position on landscape: Hills, fan piedmonts

Composition

Major components:
• Orovada fine sandy loam, 4 to 15 percent slopes (35 percent)
• Grina gravelly loam, 15 to 50 percent slopes (30 percent)
• Upsteer silt loam, 15 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Tuffo coarse sandy loam, 30 to 50 percent slopes (7 percent)
• Inclusion 2: Tuffo coarse sandy loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Yuko gravelly sandy loam, 30 to 50 percent slopes (3 percent)

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Grina Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from siltstone and tuff
Slope range: 15 to 50 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Moderately alkaline

Depth: 7 to 18 inches
Texture: Silty clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline

Depth: 18 to 22 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.3 to 3.2 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Upsteer Soil

Classification: Aridic Duric Haploxerolls, fine-silty, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Loess over alluvium derived from tuff
Slope range: 15 to 50 percent
Elevation: 5,200 to 5,600 feet
Dominant present vegetation: Big sagebrush, Idaho fescue, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 35 to 61 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11.5 to 13 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex foot slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Orovada soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Grina soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—very poor; shrubs (nonirrigated)—poor

Suitability of the Upsteer soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Grina Soil for Woodland

Site index for common trees: Utah juniper—18
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Grina Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Upsteer Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Orovada soil—4e, irrigated, 6c, nonirrigated; Grina soil—7e, nonirrigated; Upsteer soil—7e, nonirrigated
Range site: Orovada soil—025X019N; Grina soil—025X059N; Upsteer soil—025X027N; Inclusion 1—025X015N; Inclusion 2—025X015N; Inclusion 3—025X019N

501—Short Creek-Short Creek, very steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Short Creek gravelly clay loam, 30 to 50 percent slopes (50 percent)
• Short Creek gravelly clay loam, 50 to 75 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Calcic Argixerolls, fine, montmorillonitic, frigid (5 percent)
• Inclusion 2: Enko loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 30 to 50 percent
Elevation: 5,400 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass
rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.6 to 5.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Steep Short Creek Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 50 to 75 percent
Elevation: 5,400 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 100 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 3 to 45 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 45 to 64 inches
Texture: Extremely gravelly sandy clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.6 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Calcic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Concave foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the very steep Short Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Short Creek Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Very Steep Short Creek Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Short Creek soils—7e, nonirrigated
Range site: Short Creek soil—025X015N; the very steep Short Creek soil—025X012N; Inclusion 1—025X014N; Inclusion 2—025X019N

511—Dacker-Gance-Kelk association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
• Dacker silt loam, 2 to 8 percent slopes (50 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (20 percent)
• Kelk silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Hunnton loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Puett silt loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Wieland gravelly loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass
Inclusion 3
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Dacker Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Dacker soil—3e, irrigated, 6s, nonirrigated; Gance soil—7s, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated
Range site: Dacker soil—025X019N; Gance soil—025X019N; Kelk soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X025N; Inclusion 3—025X019N

512—Dacker-Zevadez-Kelk association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
- Dacker silt loam, 2 to 4 percent slopes (45 percent)
- Zevadez loam, 4 to 15 percent slopes (25 percent)
- Kelk silt loam, 0 to 2 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Haybourne gravelly coarse sandy loam, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Hunnton loam, 2 to 4 percent slopes (4 percent)
- Inclusion 3: Enko fine sandy loam, 0 to 4 percent slopes (3 percent)
- Inclusion 4: Connel sandy loam, 0 to 8 percent slopes (3 percent)

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable

Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 7.4 to 9.3 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, cheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans and the adjacent fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans and the adjacent fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Fair—small stones, slope
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, rooting depth
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Dacker soil—3e, irrigated, 6s, nonirrigated; Zevadez soil—4e, irrigated, 6c, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated
Range site: Dacker soil—025X019N; Zevadez soil—025X019N; Kelk soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

513—Dacker-Dewar-Hunewill association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Dacker silt loam, 4 to 8 percent slopes (40 percent)
• Dewar gravelly silt loam, 2 to 4 percent slopes (30 percent)
• Hunewill gravelly sandy loam, 8 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Orovada gravelly loam, 8 to 15 percent slopes (5 percent)
• Inclusion 2: Hunewill very gravelly coarse sandy loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 15 to 30 percent slopes (5 percent)

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 8 percent
Elevation: 5,500 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,500 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 8 to 15 percent
Elevation: 5,500 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.5 to 4.5 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Needleandthread

Inclusion 3
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Hunewill soil for named elements: Grain

and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Dewar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Slope, large stones, too sandy

Interpretive Groups

Capability classification: Dacker soil—3e, irrigated, 6s, nonirrigated; Dewar soil—4e, irrigated, 7s, nonirrigated; Hunewill soil—4e, irrigated, 6c, nonirrigated
Range site: Dacker soil—025X019N; Dewar soil—025X019N; Hunewill soil—025X019N; Inclusion 1—025X019N; Inclusion 2—024X017N; Inclusion 3—025X019N

516—Dacker-Yuko-Wieland association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Dacker silt loam, 2 to 4 percent slopes (40 percent)
• Yuko very gravelly loam, 15 to 30 percent slopes (25 percent)
• Wieland loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Puett sandy loam, 15 to 50 percent slopes (8 percent)
• Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 3: Zevadez gravelly loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches

Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Interpretive Groups

Capability classification: Dacker soil—3e, irrigated, 6s, nonirrigated; Yuko soil—7s, nonirrigated; Wieland soil—4e, irrigated, 6s, nonirrigated
Range site: Dacker soil—025X019N; Yuko soil—025X019N; Wieland soil—025X019N; Inclusion 1—025X025N; Inclusion 2—025X019N; Inclusion 3—025X019N

521—Norfork-Loomis-Chiara association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
• Norfork very cobbly silt loam, 15 to 30 percent slopes (40 percent)
• Loomis very cobbly loam, 15 to 30 percent slopes (25 percent)
• Chiara silt loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Devilsgait silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 3: Hunnton loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Rubble land (3 percent)

Characteristics of the Norfolk Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Smooth side slopes of hills
Parent material: Residuum derived from basalt and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Black sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 2 inches
Texture: Very cobbly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 12 inches
Texture: Gravelly silty clay
Structure: Prismatic
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 12 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: 21 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D

Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Loomis Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Black sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Very cobbly clay
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 11 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.0 to 1.9 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass, basin wildrye

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 20 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 14 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches

Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Wildrye, willow
Inclusion 3
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Norfork soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loomis soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Chiara soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Norfork Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, cemented pan, slope
Local roads and streets: Severe—cemented pan, slope
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loomis Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Norfork soil—7e, nonirrigated; Loomis soil—7s, nonirrigated; Chiara soil—7s, nonirrigated
Range site: Norfork soil—024X030N; Loomis soil—024X030N; Chiara soil—025X019N; Inclusion 1—none; Inclusion 2—025X001N; Inclusion 3—025X019N; Inclusion 4—none

530—Upville-Connel-Halleck association

Map Unit Setting

Position on landscape: Stream terraces, flood plains

Composition

Major components:
• Upville gravelly loam, 0 to 4 percent slopes (55 percent)
• Connel gravelly loam, 0 to 2 percent slopes (20 percent)
• Halleck silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Alburz Variant loam, 0 to 4 percent slopes (5 percent)
• Inclusion 2: Welsum loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Aridic Argixerolls, fine-loamy, mixed, frigid, 2 to 8 percent slopes (2 percent)

Characteristics of the Upville Soil

Classification: Aridic Haploxerolls, sandy-skeletal, mixed, frigid
Position on landscape: Upper stream terraces
Parent material: Alluvium derived from granitic rock
Slope range: 0 to 4 percent
Elevation: 5,500 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 95 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 10

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 10 to 19 inches
Texture: Very gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 19 to 61 inches
Texture: Extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.1 to 4.8 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Connel Soil

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Lower stream terraces
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.6 to 4.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.24; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Halleck Soil

Classification: Cumulic Haplaquolls fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,100 feet
Dominant present vegetation: Willow, rush, sedge

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Typic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Natural levees on the flood plains adjacent to stream channels
Distinctive present vegetation: Cottonwood

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to stream channels
Distinctive present vegetation: Tufted hairgrass

Inclusion 3
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Upper stream terraces
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the Upville soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Connel soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Upville Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, large stones
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty
Terraces and diversions: Large stones, too sandy

Suitability and Limitations of the Connel Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty
Terraces and diversions: Too sandy

Suitability and Limitations of the Halleck Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Upville soil—4s, irrigated, 7s, nonirrigated; Connel soil—3s, irrigated, 7c, nonirrigated; Halleck soil—5w, irrigated and nonirrigated
Range site: Upville soil—025X014N; Connel soil—025X019N; Halleck soil—025X005N; Inclusion 1—025X053N; Inclusion 2—025X005N; Inclusion 3—025X014N

540—Gando-Inpendence-Bullump association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Gando very gravelly loam, 15 to 30 percent slopes (30 percent)
• Inpendence gravelly loam, 30 to 50 percent slopes (30 percent)
• Bullump very gravelly loam, 30 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Hapgood very gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Hackwood gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 4: Cumulic Cryaquolls, loamy-skeletal, mixed, 0 to 4 percent slopes (2 percent)

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from chert, argillite, and quartzite
Slope range: 15 to 30 percent
Elevation: 7,500 to 8,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, Idaho fescue, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 to 21 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches

Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Inpendence Soil

Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium derived from chert, argillite, and quartzite
Slope range: 30 to 50 percent
Elevation: 6,600 to 8,500 feet
Dominant present vegetation: Mountain brome, Idaho fescue, quaking aspen

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 40 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly acid

Depth: 9 to 60 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Strongly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 3.6 to 6.0 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Moderate

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Colluvium derived from chert, argillite, and quartzite
Slope range: 30 to 50 percent
Elevation: 6,600 to 8,500 feet
Dominant present vegetation: Snowberry, mountain big sagebrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Pachic Cryoborolls, loamy-skeletal, mixed

Position on landscape: Foot slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Concave, upper, north-facing side slopes of mountains
Distinctive present vegetation: Letterman needlegrass

Inclusion 3
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Inclusion 4
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Inpendence soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Gando Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Inpendence Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gando soil—7s, nonirrigated; Inpendence soil—7e, nonirrigated; Bullump soil—7s, nonirrigated
Range site: Gando soil—025X024N; Inpendence soil—025X002N; Bullump soil—025X016N; Inclusion 1—025X004N; Inclusion 2—025X028N; Inclusion 3—025X065N; Inclusion 4—025X064N

570—Sumine-Hapgood-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 30 to 50 percent slopes (35 percent)
• Hapgood very gravelly loam, 30 to 50 percent slopes (35 percent)
• Cleavage extremely gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Tusel very gravelly loam, 30 to 50 percent slopes (9 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 3: Pachic Argixerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes (2 percent)
• Inclusion 4: Loncan very gravelly loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains

Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,800 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,800 feet
Dominant present vegetation: Mountain big sagebrush, mountain brome, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,800 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Convex, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Inclusion 3
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, north-facing foot slopes of mountains
Distinctive present vegetation: Basin wildrye

Inclusion 4
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope

Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Hapgood, and Cleavage soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Hapgood soil—025X004N; Cleavage soil—025X024N; Inclusion 1—025X004N; Inclusion 2—025X006N; Inclusion 3—025X029N; Inclusion 4—025X012N

571—Sumine-Tusel-Gando association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (50 percent)
• Tusel gravelly loam, 15 to 50 percent slopes (20 percent)
• Gando very gravelly loam, 8 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Hackwood gravelly loam, 30 to 50 percent slopes (6 percent)
• Inclusion 3: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (1 percent)
• Inclusion 4: Cumulic Haplaquolls, loamy-skeletal, mixed, frigid, 0 to 4 percent slopes (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Gravelly loam

Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.2 to 6.3 inches
Water-supplying capacity: 13 to 16.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 8 to 30 percent
Elevation: 7,000 to 7,500 feet

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 to 21 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen, mountain brome
Inclusion 3
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Quaking aspen, tufted hairgrass
Inclusion 4
Classification: Cumulic Haplaquolls, loamy-skeletal, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices

Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gando Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Tusel soil—7e, nonirrigated; Gando soil—7s, nonirrigated
Range site: Sumine soil—025X009N; Tusel soil—025X010N; Gando soil—025X024N; Inclusion 1—none; Inclusion 2—025X065N; Inclusion 3—025X064N; Inclusion 4—025X003N

572—Sumine-Shivlum-Cleavage association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
- Shivlum silt loam, 15 to 30 percent slopes (30 percent)
- Cleavage very gravelly loam, 8 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Loncan gravelly loam, 15 to 30 percent slopes (10 percent)
- Inclusion 2: Cotant cobbly loam, 4 to 15 percent slopes (2 percent)
- Inclusion 3: Cleavage extremely gravelly loam, 8 to 15 percent slopes (2 percent)
- Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Shivlum Soil

Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Colluvium derived from welded tuff and influenced by loess
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 9 to 34 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Slightly concave areas on crests and convex side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Distinctive present vegetation: Black sagebrush, low sagebrush
Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Shivlum soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Shivlum Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—low strength
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Shivlum soil—6e, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Sumine soil—025X009N; Shivlum soil—025X012N; Cleavage soil—025X017N; Inclusion 1—025X012N; Inclusion 2—025X017N; Inclusion 3—025X024N; Inclusion 4—none

573—Sumine-Hackwood-Gando association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (45 percent)
• Hackwood silt loam, 15 to 50 percent slopes (25 percent)
• Gando very gravelly loam, 8 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Rock outcrop (6 percent)
- Inclusion 2: Hapgood very gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 3: Cleavage very gravelly loam, 15 to 50 percent slopes (2 percent)
- Inclusion 4: Welch silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from chert, argillite, and quartzite
Slope range: 15 to 50 percent
Elevation: 7,400 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium derived from chert, argillite, and quartzite
Slope range: 15 to 50 percent
Elevation: 7,400 to 8,000 feet
Dominant present vegetation: Quaking aspen, mountain brome

Climatic Data

Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 20 to 30 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 6.6 to 10.0 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from chert, argillite, and quartzite
Slope range: 8 to 30 percent
Elevation: 7,700 to 8,000 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 to 21 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hackwood soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Hackwood Soil for Woodland

Site index for common trees: Quaking aspen—44
Most important native understory plants: Currant, snowberry, Idaho fescue

Suitability and Limitations of the Hackwood Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gando Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Hackwood soil—7e, nonirrigated; Gando soil—7s, nonirrigated
Range site: Sumine soil—025X009N; Hackwood soil—025X065N; Gando soil—025X024N; Inclusion 1—none; Inclusion 2—025X004N; Inclusion 3—025X017N; Inclusion 4—025X003N

574—Sumine-Cleavage-Cleavage, very cobbly association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
• Cleavage very gravelly loam, 15 to 30 percent slopes (30 percent)
• Cleavage very cobbly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Loncan very gravelly loam, 30 to 50 percent slopes (8 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Roca very gravelly loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing, concave side slopes of mountains
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 15 to 50 percent
Elevation: 5,600 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth or slightly convex side slopes of mountains
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 15 to 30 percent
Elevation: 5,600 to 7,600 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Cobbly Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 15 to 30 percent
Elevation: 5,600 to 7,600 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: North-facing, concave side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2

Position on landscape: Crests and side slopes of mountains

Distinctive present vegetation: None

Inclusion 3

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, lower side slopes of mountains
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the very cobbly Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Very Cobbly Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil and both Cleavage soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Cleavage soil—025X017N; the very cobbly Cleavage soil—025X024N; Inclusion 1—025X012N; Inclusion 2—none; Inclusion 3—025X014N

575—Sumine-Hapgood-Hackwood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
• Hapgood very gravelly loam, 30 to 50 percent slopes (30 percent)
• Hackwood silt loam, 15 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (6 percent)
• Inclusion 2: Heechee gravelly loam, 15 to 30 percent slopes, very stony (3 percent)
• Inclusion 3: Pernty very gravelly loam, 15 to 50 percent slopes (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Residuum and colluvium derived from granitic rock and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 8,300 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F

Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: North-facing side slopes of mountains
Parent material: Residuum and colluvium derived from granitic rock and welded tuff
Slope range: 30 to 50 percent
Elevation: 6,500 to 8,300 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, mountain brome

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: North-facing side slopes of mountains
Parent material: Colluvium derived from granitic rock and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 8,300 feet
Dominant present vegetation: Quaking aspen

Climatic Data

Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 20 to 30 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 6.6 to 10.0 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Foot slopes of mountains
Distinctive present vegetation: Antelope bitterbrush
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex crests and side slopes of mountains
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hackwood soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Hackwood Soil for Woodland
Site index for common trees: Quaking aspen—44
Most important native understory plants: Currant, snowberry, Idaho fescue

Suitability and Limitations of the Hackwood Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Hapgood soil—7s, nonirrigated; Hackwood soil—7e, nonirrigated
Range site: Sumine soil—025X009N; Hapgood soil—025X004N; Hackwood soil—025X065N; Inclusion

1—none; Inclusion 2—025X007N; Inclusion 3—025X012N

576—Sumine-Cleavage-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 50 to 75 percent slopes (40 percent)
• Cleavage extremely gravelly loam, 30 to 75 percent slopes (30 percent)
• Hapgood very gravelly loam, 50 to 75 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Tusel gravelly loam, 30 to 50 percent slopes (4 percent)
• Inclusion 2: Pernty very gravelly loam, 30 to 50 percent slopes, very stony (3 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Rubble land (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 6,500 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 6,500 to 7,500 feet
Dominant present vegetation: Low sagebrush, black sagebrush

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 6,500 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Very rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Serviceberry, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope

Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices

Range seeding: Poor—small stones, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Cleavage, and Hapgood soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Cleavage soil—025X024N; Hapgood soil—025X004N; Inclusion 1—025X010N; Inclusion 2—025X046N; Inclusion 3—025X003N; Inclusion 4—none

577—Sumine-Tusel-Hapgood association, steep

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 30 to 50 percent slopes (35 percent)
• Tusel very gravelly loam, 30 to 50 percent slopes (30 percent)
• Hapgood very gravelly loam, 50 to 75 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: McIvey very gravelly loam, 15 to 50 percent slopes (8 percent)
• Inclusion 2: Bullump very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes, rarely flooded (2 percent)
• Inclusion 4: Lithic Argixerolls, loamy-skeletal, mixed, 30 to 50 percent slopes (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,700 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,700 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue, mountain brome

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.2 inches
Water-supplying capacity: 13 to 16.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 6,700 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Very rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Foot slopes of mountains and side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Antelope bitterbrush, mountain big sagebrush, mountain brome
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing, lower side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Tusel, and Hapgood soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Tusel soil—025X004N; Hapgood soil—025X004N; Inclusion 1—025X012N; Inclusion 2—025X016N; Inclusion 3—025X003N; Inclusion 4—025X015N

578—Sumine-Tusel-Hapgood association, very steep

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 50 to 75 percent slopes (45 percent)
• Tusel extremely gravelly loam, 50 to 75 percent slopes (25 percent)
• Hapgood very gravelly loam, 50 to 75 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Cleavage extremely gravelly loam, 15 to 50 percent slopes (10 percent)
• Inclusion 2: Chen very gravelly loam, 15 to 30 percent slopes (3 percent)

• Inclusion 3: Welch silt loam, 2 to 8 percent slopes (1 percent)
• Inclusion 4: Bullump very gravelly loam, 30 to 50 percent slopes (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.2 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.05; T value—3; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff

Slope range: 50 to 75 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Very rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and shoulders of mountains
Distinctive present vegetation: Low sagebrush

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass, sedge

Inclusion 4
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, upper, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, antelope bitterbrush, mountain brome

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices

Range seeding: Poor—small stones, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Tusel, and Hapgood soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Tusel soil—025X010N; Hapgood soil—025X004N; Inclusion 1—025X024N; Inclusion 2—025X017N; Inclusion 3—025X005N; Inclusion 4—025X016N

579—Sumine-Pernty-Tusel association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 30 to 50 percent slopes (35 percent)
• Pernty very gravelly loam, 15 to 50 percent slopes, very stony (30 percent)
• Tusel very gravelly loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Cleavage extremely gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Hapgood very gravelly loam, 30 to 50 percent slopes (5 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches

Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 to 22 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.2 inches
Water-supplying capacity: 13 to 16.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper side slopes of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush

Inclusion 2
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 3
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Pernty, and Tusel soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Pernty soil—025X046N; Tusel soil—025X004N; Inclusion 1—025X024N; Inclusion 2—none; Inclusion 3—025X004N

580—Sumine-Cleavage-Pernty association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (35 percent)
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (30 percent)
• Pernty very gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Loncan gravelly loam, 30 to 50 percent slopes (6 percent)
• Inclusion 2: Hart Camp very gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Lerrow cobbly loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Crooked Creek silty clay loam, 0 to 4 percent slopes (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from shale, chert, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data
Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile
Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm

Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 4 to 15 percent
Elevation: 6,700 to 7,000 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, lower side slopes of hills
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 to 22 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow

Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: North-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Aridic Argixerolls, loamy, mixed, frigid, shallow
Position on landscape: Slightly concave crests of hills
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue
Inclusion 3
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Concave, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Entrenched drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Cleavage, and Pernty soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Cleavage soil—025X024N; Pernty soil—025X012N; Inclusion 1—025X012N; Inclusion 2—025X007N; Inclusion 3—025X009N; Inclusion 4—025X003N

582—Sumine-Vitale-Bullvaro association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Sumine extremely stony loam, 30 to 75 percent slopes

(35 percent)
• Vitale very gravelly loam, 30 to 75 percent slopes, bouldery (30 percent)
• Bullvaro loam, 30 to 75 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rubble land (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (3 percent)
• Inclusion 4: Lithic Xerorthents, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South- and west-facing side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 5,600 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 20
Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 6 inches
Texture: Extremely stony loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.0 to 3.9 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—8
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vitale Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, north- and east-facing side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 5,600 to 6,500 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 20
Percent cobbles on the surface: 5

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 6 to 23 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.5 to 4.2 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—8

Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bullvaro Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Upper, north- and east-facing side slopes of plateaus
Parent material: Colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 6,500 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 15 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 15 to 23 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 to 37 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 37 to 60 inches
Texture: Extremely gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 5.0 to 6.9 inches
Water-supplying capacity: 11 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Below areas of rock outcrop on side slopes of plateaus
Distinctive present vegetation: None
Inclusion 2
Position on landscape: Middle side slopes and rims of plateaus
Distinctive present vegetation: None
Inclusion 3
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways on plateaus
Distinctive present vegetation: Quaking aspen
Inclusion 4
Classification: Lithic Xerorthents, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rock outcrop on side slopes of plateaus
Distinctive present vegetation: Wyoming big sagebrush, Rocky Mountain juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vitale soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—fair
Suitability of the Bullvaro soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—large stones, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vitale Soil for Various Uses and Practices

Range seeding: Poor—small stones, erodes easily, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bullvaro Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Vitale soil—7s, nonirrigated; Bullvaro soil—7e, nonirrigated
Range site: Sumine soil—025X009N; Vitale soil—025X012N; Bullvaro soil—025X017N; Inclusion 1—none; Inclusion 2—none; Inclusion 3—025X064N; Inclusion 4—025X068N

583—Sumine-Cleavage-Rock outcrop association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
• Cleavage extremely gravelly loam, 15 to 50 percent slopes (30 percent)
• Rock outcrop (15 percent)
Contrasting inclusions:
• Inclusion 1: Hapgood very gravelly loam, 30 to 50 percent slopes (9 percent)
• Inclusion 2: Pernty very gravelly loam, 15 to 50 percent slopes, very stony (4 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes, frequently flooded (1 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite and welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 7,900 feet
Dominant present vegetation: Mountain big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 7,000 to 7,900 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of mountains
Elevation: 6,000 to 7,900 feet
Distinctive present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: North-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Inclusion 2
Classification: Lithic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Distinctive present vegetation: Serviceberry

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass, sedge

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Adjacent to entrenched stream channels in narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope

Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Cleavage soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Sumine soil—025X009N; Cleavage soil—025X024N; Rock outcrop—none; Inclusion 1—025X004N; Inclusion 2—025X046N; Inclusion 3—025X005N; Inclusion 4—025X003N

584—Sumine-Pernty-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
• Pernty very gravelly loam, 15 to 50 percent slopes (30 percent)
• Hapgood very gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Cleavage extremely gravelly loam, 15 to 50 percent slopes (10 percent)
• Inclusion 2: McIvey very cobbly loam, 15 to 50 percent slopes (2 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue, mountain brome

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing and concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass, sedge

Inclusion 4
Position on landscape: Crests and side slopes of mountains

Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Pernty, and Hapgood soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Pernty soil—025X012N; Hapgood soil—025X004N; Inclusion 1—025X024N; Inclusion 2—025X012N; Inclusion 3—025X005N; Inclusion 4—none

585—Sumine-Pernty-McIvey association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Sumine very gravelly loam, 15 to 30 percent slopes (35 percent)
• Pernty very gravelly loam, 15 to 30 percent slopes (30 percent)
• McIvey gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Quarz very gravelly loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Graley very gravelly loam, 15 to 30 percent slopes (4 percent)
• Inclusion 3: Rock outcrop (1 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from andesite or rhyolite
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Colluvium derived from andesite and rhyolite
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Hard, very firm

Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7s, nonirrigated; Pernty soil—7s, nonirrigated; McIvey soil—6e, nonirrigated
Range site: Sumine soil—025X009N; Pernty soil—025X012N; McIvey soil—025X012N; Inclusion 1—

025X009N; Inclusion 2—025X012N; Inclusion 3—none

586—Sumine-Loncan-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Sumine very gravelly loam, 15 to 50 percent slopes (40 percent)
- Loncan very gravelly loam, 15 to 50 percent slopes (30 percent)
- Cleavage extremely gravelly loam, 8 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Quarz very gravelly loam, 15 to 50 percent slopes (5 percent)
- Inclusion 2: McIvey cobbly loam, 8 to 15 percent slopes (4 percent)
- Inclusion 3: Chen very cobbly loam, 4 to 15 percent slopes (4 percent)
- Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from sandstone or conglomerate
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 6 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from sandstone and conglomerate
Slope range: 8 to 15 percent
Elevation: 6,800 to 7,000 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave foot slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex foot slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope

Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine, Loncan, and Cleavage soils—7s, nonirrigated
Range site: Sumine soil—025X009N; Loncan soil—025X012N; Cleavage soil—025X024N; Inclusion 1—025X009N; Inclusion 2—025X012N; Inclusion 3—025X017N; Inclusion 4—none

587—Sumine-Bullvaro-Hackwood association

Map Unit Setting

Position on landscape: Plateaus, mountains

Composition

Major components:
- Sumine gravelly loam, 30 to 75 percent slopes (35 percent)
- Bullvaro loam, 30 to 75 percent slopes (25 percent)
- Hackwood silt loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Typic Haploxerolls, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes (10 percent)
- Inclusion 2: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (3 percent)
- Inclusion 3: Rock outcrop (2 percent)
- Inclusion 4: Rubble land (5 percent)

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South- and west-facing side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 5,600 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.4 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low

Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bullvaro Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, north- and east-facing side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 5,600 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 15 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 15 to 23 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 to 37 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 37 to 60 inches
Texture: Extremely gravelly sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 5.0 to 6.9 inches
Water-supplying capacity: 12.5 to 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north- and east-facing side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 5,600 to 7,200 feet
Dominant present vegetation: Quaking aspen, mountain brome

Climatic Data

Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 20 to 30 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 6.6 to 10 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: North-facing foot slopes of plateaus
Distinctive present vegetation: Curlleaf mountainmahogany
Inclusion 2
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways on plateaus
Distinctive present vegetation: Quaking aspen, tufted hairgrass
Inclusion 3
Position on landscape: Side slopes of plateaus
Distinctive present vegetation: None
Inclusion 4
Position on landscape: Below or adjacent to areas of rock outcrop on side slopes of plateaus
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bullvaro soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Hackwood soil for named.elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bullvaro Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—small stones
Gravel: Probable source

Suitability of the Hackwood Soil for Woodland
Site index for common trees: Quaking aspen—44
Most important native understory plants: Mountain brome, snowberry, Idaho fescue

Suitability and Limitations of the Hackwood Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Sumine soil—7e, nonirrigated; Bullvaro soil—7e, nonirrigated; Hackwood soil—6e, nonirrigated
Range site: Sumine soil—025X009N; Bullvaro soil—025X017N; Hackwood soil—025X065N; Inclusion 1—028B042N; Inclusion 2—025X064N; Inclusion 3—none; Inclusion 4—none

590—Bucan-Kelk-Orovada association

Map Unit Setting

Position on landscape: Hills, fan piedmonts

Composition

Major components:
• Bucan gravelly loam, 30 to 50 percent slopes (40 percent)
• Kelk silt loam, 4 to 15 percent slopes (20 percent)
• Orovada fine sandy loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Lerrow gravelly loam, 30 to 50 percent slopes (6 percent)
• Inclusion 2: Eboda loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Bucan loam, 30 to 50 percent slopes (4 percent)

• Inclusion 4: Rock outcrop (5 percent)

Characteristics of the Bucan Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Position on landscape: South- and west-facing side slopes of hills
Parent material: Loess over residuum derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,000 to 5,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 30 inches
Texture: Clay
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 30 to 57 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 57 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.2 to 7.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—3; wind erodibility group—7
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Concave summits and side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,500 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6

Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Orovada Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,500 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 7 to 15 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 15 to 60 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 8.4 to 9.6 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: South- and west-facing, upper side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 3
Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Position on landscape: South- and west-facing side slopes of hills in areas of rock outcrop
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bucan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Orovada soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Bucan Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—low strength, slope, shrink-swell potential
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope

Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Fair—slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Orovada Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer, slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Soil blowing, slope, erodes easily
Terraces and diversions: Slope, erodes easily, soil blowing

Interpretive Groups

Capability classification: Bucan soil—7e, nonirrigated; Kelk soil—4e, irrigated, 6s, nonirrigated; Orovada soil—4e, irrigated, 6c, nonirrigated
Range site: Bucan soil—025X019N; Kelk soil—025X019N; Orovada soil—025X019N; Inclusion 1—025X009N; Inclusion 2—025X027N; Inclusion 3—025X019N; Inclusion 4—none

591—Bucan-Vanwyper-Akler association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Bucan loam, 30 to 50 percent slopes (40 percent)
• Vanwyper gravelly loam, 15 to 30 percent slopes, stony (35 percent)
• Akler very gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Loncan loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)

Characteristics of the Bucan Soil

Classification: Xerollic Haplargids, fine, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Loess over residuum and colluvium derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 11 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 11 to 30 inches
Texture: Clay
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Mildly alkaline

Depth: 30 to 57 inches
Texture: Gravelly clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 57 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.4 to 7.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 0.1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex, north-facing side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 21 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.2 to 1.8 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid

Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 2
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bucan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bucan Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—low strength, slope, shrink-swell potential
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bucan soil—7e, nonirrigated; Vanwyper soil—7e, nonirrigated; Akler soil—7s, nonirrigated
Range site: Bucan soil—025X019N; Vanwyper soil—025X019N; Akler soil—025X018N; Inclusion 1—025X012N; Inclusion 2—none

600—Hapgood-Bullump-Gando association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Hapgood very gravelly loam, 30 to 50 percent slopes (30 percent)
• Bullump very gravelly loam, 15 to 50 percent slopes (30 percent)
• Gando very gravelly loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Hackwood very gravelly loam, 30 to 50 percent slopes (8 percent)
• Inclusion 2: Welch silt loam, 2 to 4 percent slopes (3 percent)
• Inclusion 3: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: North-facing, lower side slopes of mountains

Parent material: Residuum derived from chert, shale, quartzite, and argillic siltstone
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,700 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, chokecherry, antelope bitterbrush

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: moderate

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Colluvium derived from chert, shale, and quartzite
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,700 feet
Dominant present vegetation: Snowberry, mountain big sagebrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from chert, shale, and quartzite
Slope range: 15 to 30 percent
Elevation: 6,500 to 7,700 feet

Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 to 21 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: North-facing, upper side slopes of mountains
Distinctive present vegetation: Quaking aspen, mountain brome

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass, alpine timothy, meadow sedge

Inclusion 3
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Drainageways in the mountains
Distinctive present vegetation: Quaking aspen, mountain brome

Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bullump Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gando Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones

Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Hapgood, Bullump, and Gando soils—7s, nonirrigated
Range site: Hapgood soil—025X004N; Bullump soil—025X016N; Gando soil—025X024N; Inclusion 1—025X065N; Inclusion 2—025X005N; Inclusion 3—025X064N; Inclusion 4—none

620—Soughe, eroded-Soughe association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Soughe very cobbly loam, 30 to 50 percent slopes, eroded (50 percent)
• Soughe very cobbly loam, 30 to 50 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (3 percent)
• Inclusion 2: Cowgil Variant very cobbly loam, 15 to 30 percent slopes (3 percent)
• Inclusion 3: Hunewill sandy loam, 15 to 30 percent slopes (2 percent)
• Inclusion 4: Rubble land (2 percent)

Characteristics of the Eroded Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff or andesite
Slope range: 30 to 50 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Indian ricegrass, Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 2 to 10 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.8 inch to 1.2 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Crests and upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff and andesite
Slope range: 30 to 50 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very cobbly loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 14 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 14 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.2 to 1.6 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Smooth, lower side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 4
Position on landscape: Adjacent to or below areas of rock outcrop on side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the eroded Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Eroded Soughe Soil for Woodland
Site index for common trees: Utah juniper—30
Most important native understory plants: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Suitability and Limitations of the Eroded Soughe Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Soughe Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Soughe soils—7s, nonirrigated
Range site: The eroded Soughe soil—025X059N; Soughe soil—025X015N; Inclusion 1—none; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—none

630—Cowgil Variant-Soughe association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cowgil Variant very cobbly loam, 30 to 50 percent slopes (50 percent)
• Soughe very cobbly loam, 30 to 50 percent slopes, eroded (35 percent)
Contrasting inclusions:
• Inclusion 1: Zevadez gravelly loam, 15 to 30 percent slopes (8 percent)
• Inclusion 2: Rock outcrop (3 percent)
• Inclusion 3: Devilsgait silty clay loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Rubble land (2 percent)

Characteristics of the Cowgil Variant Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Smooth side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 30

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 12 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 12 to 42 inches
Texture: Very cobbly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Neutral

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 50 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.8 to 4.4 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.10; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Soughe Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Indian ricegrass, Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 2 to 10 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow

Available water capacity: 0.8 inch to 1.2 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Lower, concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Position on landscape: Side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Distinctive present vegetation: Willow, wildrye
Inclusion 4
Position on landscape: Below areas of rock outcrop on side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cowgil Variant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Soughe soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated—poor; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cowgil Variant Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Soughe Soil for Woodland
Site index for common trees: Utah juniper—30
Most important native understory plants: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Suitability and Limitations of the Soughe Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cowgil Variant and Soughe soils—7s, nonirrigated
Range site: Cowgil Variant soil—025X019N; Soughe soil—025X059N; Inclusion 1—025X019N; Inclusion 2—none; Inclusion 3—025X001N; Inclusion 4—none

631—Hunewill-Bilbo-Devilsgait association

Map Unit Setting

Position on landscape: Inset fans, remnants of inset fans

Composition

Major components:
• Hunewill gravelly silt loam, 2 to 4 percent slopes (40 percent)
• Bilbo very gravelly loam, 2 to 8 percent slopes (30 percent)
• Devilsgait silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 2 to 8 percent slopes (10 percent)
• Inclusion 2: Connel gravelly sandy loam, 0 to 4 percent slopes (3 percent)
• Inclusion 3: Sonoma silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Lower inset fan remnants
Parent material: Mixed alluvium
Slope range: 2 to 4 percent
Elevation: 5,500 to 6,500 feet

Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.5 to 4.5 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Upper parts of inset fan remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6 to 9 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Inset fans
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 10 inches

Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans adjacent to stream channels
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: At the confluence of the inset fans and flood plains
Distinctive present vegetation: Black greasewood, alkali sacaton

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Hunewill soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, large stones
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Large stones, too sandy

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Slight
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage

Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Hunewill soil—3e, irrigated, 6c, nonirrigated; Bilbo soil—7s, nonirrigated; Devilsgait soil—3c, irrigated, 6c, nonirrigated
Range site: Hunewill soil—025X019N; Bilbo soil—025X019N; Devilsgait soil—025X003N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—024X007N

632—Hunewill-Kelk-Devilsgait association

Map Unit Setting

Position on landscape: Fan piedmont remnants, flood plains

Composition

Major components:
• Hunewill gravelly sandy loam, 0 to 2 percent slopes (40 percent)
• Kelk silt loam, 0 to 2 percent slopes (30 percent)
• Devilsgait silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Ocala silt loam, 0 to 2 percent slopes (8 percent)
• Inclusion 2: Xerollic Camborthids, clayey over sandy or sandy-skeletal, montmorillonitic, mesic (7 percent)

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,550 to 5,850 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.5 to 4.5 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,550 to 5,850 feet
Dominant present vegetation: Big sagebrush, cheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,550 to 5,850 feet
Dominant present vegetation: Basin big sagebrush, rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 8 to 43 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 43 to 68 inches
Texture: Stratified loamy fine sand to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 10 to 12 inches
Water-supplying capacity: 9 to 11 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Distinctive present vegetation: Black greasewood, alkali sacaton

Inclusion 2
Classification: Xerollic Camborthids, clayey over sandy or sandy-skeletal, montmorillonitic, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Hunewill soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—poor

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, large stones
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty
Terraces and diversions: Large stones, too sandy

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—shrink-swell potential
Topsoil: Good
Daily cover for landfill: Fair—too clayey
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Moderate—thin layer, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Erodes easily
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Hunewill soil—3s, irrigated, 6c, nonirrigated; Kelk soil—2s, irrigated, 6s, nonirrigated; Devilsgait soil—3c, irrigated, 6c, nonirrigated
Range site: Hunewill soil—025X019N; Kelk soil—025X019N; Devilsgait soil—025X003N; Inclusion 1—024X007N; Inclusion 2—025X019N

633—Hunewill, strongly sloping-Kelk-Hunewill association

Map Unit Setting

Position on landscape: Partial ballenas

Composition

Major components:
• Hunewill sandy loam, 8 to 15 percent slopes (40 percent)
• Kelk silt loam, 4 to 15 percent slopes (35 percent)
• Hunewill gravelly coarse sandy loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Puett gravelly sandy loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Bioya loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Strongly Sloping Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Upper, convex side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 8 to 15 percent

Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, Greene rabbitbrush, horsebrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 7 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.7 to 4.7 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Concave side slopes of partial ballenas
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, Greene rabbitbrush, horsebrush

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 12 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunewill Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, convex side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,400 to 5,800 feet

Dominant present vegetation: Big sagebrush, needleandthread

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 7 inches
Texture: Gravelly coarse sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 19 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 19 to 62 inches
Texture: Extremely gravelly sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.5 to 4.5 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of partial ballenas with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush

Inclusion 2

Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Crests of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the strongly sloping Hunewill soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Hunewill soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Strongly Sloping Hunewill Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, large stones, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty, soil blowing
Terraces and diversions: Slope, large stones, too sandy

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Fair—slope
Daily cover for landfill: Fair—slope
Shallow excavations: Moderate—slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Hunewill Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—large stones, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Large stones, too sandy

Interpretive Groups

Capability classification: The strongly sloping Hunewill soil—4e, irrigated, 6c, nonirrigated; Kelk soil—4e, irrigated, 6s, nonirrigated; Hunewill soil—3e, irrigated, 6c, nonirrigated
Range site: The strongly sloping Hunewill soil—025X019N; Kelk soil—025X019N; Hunewill soil—024X017N; Inclusion 1—025X025N; Inclusion 2—025X019N

640—Arcia-Tusel-Hackwood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Arcia gravelly loam, 15 to 50 percent slopes (40 percent)
• Tusel gravelly loam, 15 to 50 percent slopes (30 percent)
• Hackwood silt loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Leevan very gravelly loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower, concave side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6

Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 8,400 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.2 to 6.3 inches
Water-supplying capacity: 13 to 16.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave sides slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 7,500 to 8,400 feet
Dominant present vegetation: Chokecherry, quaking aspen, curlleaf mountainmahogany

Climatic Data

Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 20 to 30 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 6.6 to 10 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush
Inclusion 3
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hackwood soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Arcia Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Hackwood Soil for Woodland
Site index for common trees: Quaking aspen—44
Most important native understory plants: Mountain brome, Idaho fescue

Suitability and Limitations of the Hackwood Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Fair—slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Arcia soil—7e, nonirrigated; Tusel soil—7e, nonirrigated; Hackwood soil—6e, nonirrigated
Range site: Arcia soil—025X012N; Tusel soil—025X010N; Hackwood soil—025X065N; Inclusion 1—025X017N; Inclusion 2—025X003N; Inclusion 3—none

650—Karpp-Chiara-Rad association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
• Karpp silt loam, 4 to 15 percent slopes (55 percent)
• Chiara silt loam, 4 to 15 percent slopes (20 percent)
• Rad silt loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Durorthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes (8 percent)
• Inclusion 2: Hunnton loam, 8 to 15 percent slopes (2 percent)

Characteristics of the Karpp Soil

Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over limestone alluvium
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Utah juniper

Climatic Data
Average annual precipitation: About 11 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 100 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 15 inches
Texture: Very gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 15 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.1 to 4.7 inches
Water-supplying capacity: 6.5 to 8.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, scattered Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rad Soil

Classification: Durixerollic Camborthids, coarse-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 26 inches
Texture: Stratified fine sandy loam to silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 56 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 8 to 16 mmhos per cm

Depth: 56 to 62 inches
Texture: Stratified sandy loam to silt loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 8 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Karpp soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Rad soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability of the Karpp Soil for Woodland
Site index for common trees: Utah juniper—25
Most important native understory plants: Big sagebrush, bluebunch wheatgrass

Suitability and Limitations of the Karpp Soil for Various Uses and Practices
Range seeding: Poor—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope

Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Rad Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Poor—thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Slight
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Karpp soil—7s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Rad soil—4e, irrigated, 6c, nonirrigated
Range site: Karpp soil—025X059N; Chiara soil—025X019N; Rad soil—025X019N; Inclusion 1—025X059N; Inclusion 2—025X019N

651—Karpp-Chiara-Wieland association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Karpp gravelly silt loam, 4 to 15 percent slopes (35 percent)
• Chiara silt loam, 4 to 15 percent slopes (30 percent)
• Wieland silt loam, 2 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Eboda loam, 30 to 50 percent slopes (10 percent)
• Inclusion 2: Enko sandy loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Karpp Soil

Classification: Xerollic Durorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over limestone alluvium
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Utah juniper

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 100 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 7 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 15 inches
Texture: Very gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 15 to 41 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.5 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Convex summits of fan piedmont remnants

Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, scattered Utah juniper

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 15 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low

Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans and concave foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Cropland, hayland, pasture
Suitability of the Karpp soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Karpp Soil for Woodland
Site index for common trees: Utah juniper—25
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Karpp Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Interpretive Groups

Capability classification: Karpp soil—7s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Wieland soil—4e, irrigated, 6s, nonirrigated
Range site: Karpp soil—025X059N; Chiara soil—025X019N; Wieland soil—025X019N; Inclusion 1—025X012N; Inclusion 2—025X019N

660—Ichbod-Akler association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Ichbod gravelly sandy loam, 2 to 15 percent slopes (60 percent)
• Akler cobbly loam, 2 to 15 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Soughe gravelly loam, 15 to 30 percent slopes (8 percent)
- Inclusion 2: McIvey gravelly loam, 15 to 30 percent slopes (5 percent)
- Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Ichbod Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Residuum derived from rhyolite or andesite
Slope range: 2 to 15 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, scattered Utah juniper

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 3 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 3 to 7 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 19 inches
Texture: Gravelly sandy clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 35 inches
Texture: Weathered bedrock

Depth: 35 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex, south-facing side slopes of hills
Parent material: Residuum derived from rhyolite
Slope range: 2 to 15 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Webber ricegrass, scattered Utah juniper

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 to 28 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.4 to 2.1 inches
Water-supplying capacity: 6.5 to 7.5 inches

Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper
Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Ichbod soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Ichbod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength, shrink-swell potential
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Ichbod soil—7s, nonirrigated; Akler soil—7s, nonirrigated
Range site: Ichbod soil—025X014N; Akler soil—025X018N; Inclusion 1—025X059N; Inclusion 2—025X012N; Inclusion 3—none

690—Welch, drained-Welch association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Welch loam, drained, 2 to 4 percent slopes (75 percent)
• Welch silty clay loam, 2 to 4 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silt loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Drained Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,600 to 8,000 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy

Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,600 to 8,000 feet
Dominant present vegetation: Tufted hairgrass, alpine timothy, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silty clay loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.8 to 13 inches
Water-supplying capacity: 11 to 17 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to fan piedmont remnants or hills
Distinctive present vegetation: Alpine timothy, Nevada bluegrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Potential foreseeable use: Cropland
Suitability of the drained Welch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Welch soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Drained Welch Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness

Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Slope
Terraces and diversions: Favorable

Suitability and Limitations of the Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—low strength, wetness, shrink-swell potential
Topsoil: Fair—too clayey, small stones
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action, slope
Irrigation: Wetness, slope, flooding
Terraces and diversions: Wetness

Interpretive Groups

Capability classification: The drained Welch soil—2w, irrigated, 6w, nonirrigated; Welch soil—5w, irrigated and nonirrigated
Range site: The drained Welch soil—025X003N; Welch soil—025X005N; Inclusion 1—025X006N; Inclusion 2—025X003N

693—Welch-Woofus association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Welch loam, 0 to 2 percent slopes (50 percent)
• Woofus loam, 0 to 2 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Devilsgait silty clay loam, 0 to 2 percent slopes (9 percent)
• Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 3: Tweba sandy loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Basin big sagebrush, basin wildrye

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 9 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Characteristics of the Woofus Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 5,600 feet
Dominant present vegetation: Basin wildrye

Climatic Data

Average annual precipitation: About 10 inches

Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 8 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 30 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified loamy fine sand to gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 24 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.0 to 9.5 inches
Water-supplying capacity: 10 to 15 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Basin wildrye

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Black greasewood, basin big sagebrush, basin wildrye

Inclusion 3
Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Flood plains
Distinctive present vegetation: Basin wildrye, creeping wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Welch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—poor
Suitability of the Woofus soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Favorable
Terraces and diversions: Favorable

Suitability and Limitations of the Woofus Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Fair—area reclaim, small stones
Daily cover for landfill: Poor—seepage, too sandy, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping, wetness
Sand: Probable source
Gravel: Probable source

Drainage: Flooding, frost action, cutbanks cave
Irrigation: Wetness, rooting depth, flooding
Terraces and diversions: Wetness, too sandy

Interpretive Groups

Capability classification: Welch soil—2w, irrigated, 6w, nonirrigated; Woofus soil—5w, irrigated and nonirrigated
Range site: Welch soil—025X003N; Woofus soil—025X001N; Inclusion 1—025X001N; Inclusion 2—024X006N; Inclusion 3—025X001N

695—Welch-Crooked Creek-Welch, occasionally flooded association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Welch silt loam, 0 to 2 percent slopes (35 percent)
• Crooked Creek silty clay loam, 0 to 2 percent slopes (30 percent)
• Welch silt loam, 0 to 2 percent slopes, occasionally flooded (20 percent)
Contrasting inclusions:
• Inclusion 1: Crooked Creek silty clay loam, 0 to 2 percent slopes, occasionally flooded (11 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes, rarely flooded (3 percent)
• Inclusion 3: Crooked Creek silty clay loam, 2 to 8 percent slopes (1 percent)

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Slightly lower areas of flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Willow, tufted hairgrass, alpine timothy, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Slightly lower areas of flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Willow, tufted hairgrass, alpine timothy

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.2 to 7.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Occasionally Flooded Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Slightly higher areas of flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Willow, alpine timothy, Nevada bluegrass, sedge

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—occasional; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Slightly higher areas of flood plains
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Tufted hairgrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Welch soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability of the occasionally flooded Welch soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—low strength, wetness, shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Wetness

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Suitability and Limitations of the Occasionally Flooded Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—low strength, wetness, shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Wetness

Interpretive Groups

Capability classification: Both Welch soils and the Crooked Creek soil—5w, irrigated and nonirrigated
Range site: Welch soil—025X005N; Crooked Creek soil—025X005N; the occasionally flooded Welch soil—025X006N; Inclusion 1—025X006N; Inclusion 2—025X003N; Inclusion 3—025X005N

698—Halleck, occasionally flooded-Halleck-Crooked Creek association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Halleck silt loam, 0 to 2 percent slopes, occasionally flooded (35 percent)
• Halleck silt loam, 0 to 2 percent slopes (25 percent)
• Crooked Creek Silt loam, 0 to 2 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Hussa silt loam, 0 to 2 percent slopes (10 percent)
• Inclusion 2: Halleck silt loam, 0 to 2 percent slopes, rarely flooded (5 percent)

Characteristics of the Occasionally Flooded Halleck Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Nevada bluegrass, alpine timothy

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—occasional; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Halleck Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Nevada bluegrass, alpine timothy

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 9 to 36 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 36 to 61 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 30 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Crooked Creek Soil

Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Willow, tufted hairgrass, alpine timothy

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 38 inches
Texture: Silty clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 38 to 60 inches
Texture: Silty clay loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Slow
Available water capacity: 6.7 to 7.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Slightly higher areas of flood plains
Distinctive present vegetation: Tufted hairgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the occasionally flooded Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good
Suitability of the Halleck soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good
Suitability of the Crooked Creek soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Occasionally Flooded Halleck Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Halleck Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Fair—too clayey, wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Erodes easily, wetness

Suitability and Limitations of the Crooked Creek Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—too clayey, hard to pack, wetness
Shallow excavations: Severe—wetness

Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Percs slowly, flooding, frost action
Irrigation: Wetness, percs slowly
Terraces and diversions: Wetness, percs slowly

Interpretive Groups

Capability classification: Both Halleck soils and the Crooked Creek soil—5w, irrigated and nonirrigated
Range site: The occasionally flooded Halleck soil—025X006N; Halleck soil—025X005N; Crooked Creek soil—025X005N; Inclusion 1—025X005N; Inclusion 2—025X003N

700—Leevan-Cleavage-Arcia association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Leevan cobbly loam, 15 to 50 percent slopes (40 percent)
• Cleavage cobbly loam, 15 to 50 percent slopes (30 percent)
• Arcia gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (10 percent)
• Inclusion 2: Hackwood silt loam, 15 to 30 percent slopes (2 percent)
• Inclusion 3: Tusel gravelly loam, 15 to 50 percent slopes (2 percent)
• Inclusion 4: Sumine gravelly loam, 30 to 50 percent slopes (1 percent)

Characteristics of the Leevan Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, lower side slopes of mountains
Parent material: Residuum derived from welded tuff or rhyolite
Slope range: 15 to 50 percent
Elevation: 6,600 to 8,300 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 9 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 14 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 14 to 24 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.8 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Summits and convex, upper side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff or rhyolite

Slope range: 15 to 50 percent
Elevation: 6,600 to 8,300 feet
Dominant present vegetation: Black sagebrush, lupine, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: North-facing, concave, lower side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 15 to 30 percent
Elevation: 6,600 to 8,300 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Summits and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: North-facing, concave, upper side slopes of mountains

Distinctive present vegetation: Quaking aspen, mountain brome

Inclusion 3

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed

Position on landscape: North-facing, smooth side slopes of mountains

Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 4

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid

Position on landscape: South-facing, smooth side slopes of mountains

Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Suitability of the Leevan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Leevan Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty, large stones

Roadfill: Poor—depth to rock, slope, shrink-swell potential

Topsoil: Poor—small stones, slope

Daily cover for landfill: Poor—depth to rock, too clayey, small stones

Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—slope, shrink-swell potential

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty

Roadfill: Poor—depth to rock, slope

Topsoil: Poor—depth to rock, small stones, slope

Daily cover for landfill: Poor—depth to rock, small stones, slope

Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—depth to rock, slope

Pond reservoir areas: Severe—depth to rock, slope

Embankments, dikes, and levees: Severe—large stones, thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Suitability and Limitations of the Arcia Soil for Various Uses and Practices

Range seeding: Good

Roadfill: Poor—depth to rock, low strength

Topsoil: Poor—small stones, slope

Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack

Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—low strength, slope, shrink-swell potential

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Leevan soil—7e, nonirrigated; Cleavage soil—7s, nonirrigated; Arcia soil—6e, nonirrigated

Range site: Leevan soil—025X017N; Cleavage soil—025X024N; Arcia soil—025X012N; Inclusion 1—none; Inclusion 2—025X065N; Inclusion 3—025X010N; Inclusion 4—025X009N

701—Leevan-Pernog-Rock outcrop association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:

- Leevan cobbly loam, 15 to 50 percent slopes (40 percent)
- Pernog gravelly loam, 15 to 50 percent slopes (35 percent)
- Rock outcrop (15 percent)

Contrasting inclusions:

- Inclusion 1: Tusel gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Eboda loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Leevan Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid

Position on landscape: Lower, convex side slopes of mountains

Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 9 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 14 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 14 to 24 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.8 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernog Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 15 to 50 percent
Elevation: 7,200 to 8,300 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, curlleaf mountainmahogany

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 17 inches
Texture: Very stony clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 10 to 13 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and upper side slopes of mountains

Elevation: 7,000 to 8,300 feet
Distinctive present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north- and east-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north- and east-facing side slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Leevan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernog soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Leevan Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty, large stones
Roadfill: Poor—depth to rock, slope, shrink-swell potential
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernog Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Leevan soil—7e, nonirrigated; Pernog soil—7e, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Leevan soil—025X017N; Pernog soil—028B042N; Rock outcrop—none; Inclusion 1—025X010N; Inclusion 2—025X027N

702—Leevan-Quarz-McIvey association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Leevan very gravelly loam, 8 to 15 percent slopes (40 percent)
• Quarz very stony loam, 15 to 30 percent slopes (35 percent)
• McIvey gravelly silt loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Arcia gravelly silt loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Leevan Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 8 to 15 percent
Elevation: 6,400 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 26 inches
Texture: Very gravelly clay
Structure: Subangular blocky

Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.0 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 15 to 30 percent
Elevation: 6,400 to 7,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 15

Depth: 0 to 4 inches
Texture: Very stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 12 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Colluvium derived from welded tuff or rhyolite
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Summits and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Leevan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Leevan Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Leevan soil—7e, nonirrigated; Quarz soil—7s, nonirrigated; McIvey soil—7e, nonirrigated
Range site: Leevan soil—025X017N; Quarz soil—025X009N; McIvey soil—025X012N; Inclusion 1—none; Inclusion 2—025X012N

710—Samor-Porrone-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Samor very gravelly loam, 15 to 50 percent slopes (45 percent)
- Porrone very gravelly loam, 15 to 50 percent slopes (30 percent)
- Rock outcrop (20 percent)

Contrasting inclusion:
- Inclusion 1: Spilock very gravelly loam, 30 to 50 percent slopes (5 percent)

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,700 to 6,300 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Porrone Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Upper, smooth or concave side slopes of hills
Parent material: Colluvium derived from limestone and influenced by loess and volcanic ash
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 35

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 18 to 65 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 4.1 to 4.9 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: B

Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills
Elevation: 5,700 to 6,300 feet
Distinctive present vegetation: None

Contrasting Inclusion

Inclusion 1
Classification: Xerollic Paleorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Lower, slightly concave side slopes of hills
Distinctive present vegetation: Black sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Porrone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Porrone Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Samor soil—7s, nonirrigated; Porrone soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Samor soil—025X059N; Porrone soil—025X019N; Rock outcrop—none; Inclusion 1—025X060N

711—Samor-Siri-Nirac association

Map Unit Setting

Position on landscape: Mountains, hills

Composition

Major components:
• Samor very gravelly loam, 15 to 50 percent slopes (40 percent)
• Siri very gravelly loam, 30 to 50 percent slopes (30 percent)
• Nirac very gravelly loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Izod very gravelly loam, 15 to 30 percent slopes (3 percent)

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Upper, convex, south- and west-facing side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 7,000 to 7,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Siri Soil

Classification: Xerollic Calciorthids, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south- and west-facing side slopes of mountains
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 65

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 57 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 57 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.1 to 5.0 inches
Water-supplying capacity: 9.0 to 10 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.10; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Nirac Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: North- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 25 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.8 to 3.9 inches
Water-supplying capacity: 6 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Lower, convex side slopes of mountains
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Siri soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Nirac soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Siri Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Nirac Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Samor, Siri, and Nirac soils—7s, nonirrigated
Range site: Samor soil—025X059N; Siri soil—025X009N; Nirac soil—025X012N; Inclusion 1—none; Inclusion 2—024X030N

712—Samor-Nirac-Samor, steep association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Samor gravelly loam, 15 to 30 percent slopes (40 percent)
- Nirac very gravelly loam, 15 to 50 percent slopes (30 percent)
- Samor very gravelly loam, 30 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Shivlum silt loam, 4 to 15 percent slopes (4 percent)
- Inclusion 2: Spilock very gravelly loam, 30 to 50 percent slopes (3 percent)
- Inclusion 3: Puett gravelly loam, 15 to 50 percent slopes (2 percent)
- Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 30 percent
Elevation: 5,500 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 2.4 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Nirac Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 15 to 50 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 25 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate

Available water capacity: 1.8 to 3.9 inches
Water-supplying capacity: 7 to 11 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Steep Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Concave, south- and west-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue, bluebunch wheatgrass
Inclusion 2
Classification: Xerollic Paleorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Smooth or slightly concave side slopes of hills
Distinctive present vegetation: Black sagebrush, Utah juniper
Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Lower, convex side slopes of hills
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass
Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Nirac soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the steep Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty

Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Nirac Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Steep Samor Soil for Woodland

Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Steep Samor Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Samor soil—7e, nonirrigated; Nirac soil—7s, nonirrigated; the steep Samor soil—7s, nonirrigated
Range site: Samor soil—025X059N; Nirac soil—025X012N; the steep Samor soil—025X059N; Inclusion 1—025X027N; Inclusion 2—025X060N; Inclusion 3—025X025N; Inclusion 4—none

716—Samor-Rock outcrop-Nirac association

Map Unit Setting

Position on landscape: Hills, mountains

Composition

Major components:
• Samor very gravelly silt loam, 15 to 50 percent slopes (55 percent)
• Rock outcrop (20 percent)
• Nirac gravelly silt loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusion:
• Inclusion 1: Xeric Torriorthents, coarse-loamy, mixed, frigid, 15 to 50 percent slopes (10 percent)

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Convex crests and side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, lupine, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills and mountains
Elevation: 6,200 to 7,000 feet
Distinctive present vegetation: None

Characteristics of the Nirac Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave, north-facing side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 14 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 25 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.8 to 4.8 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusion

Inclusion 1
Classification: Xeric Torriorthents, coarse-loamy, mixed, frigid
Position on landscape: Smooth side slopes of hills and mountains
Distinctive present vegetation: Big sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Nirac soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Nirac Soil for Various Uses and Practices

Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Samor soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated; Nirac soil—7e, nonirrigated
Range site: Samor soil—025X059N; Rock outcrop—none; Nirac soil—025X012N; Inclusion 1—025X059N

719—Samor-Sumine-Eboda association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Samor very gravelly loam, 15 to 50 percent slopes (40 percent)
• Sumine very gravelly loam, 30 to 50 percent slopes (30 percent)
• Eboda gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Argixerolls, fine-loamy, mixed, frigid, 30 to 50 percent slopes (9 percent)
• Inclusion 2: Pernty very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (1 percent)

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,800 to 6,277 feet
Dominant present vegetation: Big sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave side slopes of hills
Parent material: Residuum and colluvium derived from sandstone or conglomerate
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,277 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches

Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 to 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Loess over residuum derived from shale, sandstone, or conglomerate
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,277 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Idaho fescue, basin wildrye

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Basin wildrye, Idaho fescue
Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, upper side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Samor soil—7s, nonirrigated; Sumine soil—7s, nonirrigated; Eboda soil—6e, nonirrigated
Range site: Samor soil—025X059N; Sumine soil—025X009N; Eboda soil—025X012N; Inclusion 1—025X029N; Inclusion 2—025X012N; Inclusion 3—none

722—Lerrow-Hapgood-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Lerrow cobbly loam, 15 to 50 percent slopes (35 percent)
• Hapgood very gravelly loam, 15 to 50 percent slopes (30 percent)
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Quarz gravelly loam, 15 to 50 percent slopes (6 percent)
• Inclusion 2: Tusel gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: McIvey very gravelly loam, 15 to 50 percent slopes (4 percent)

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum derived from shale, quartzite, or chert
Slope range: 15 to 50 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile
Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.1 inches
Water-supplying capacity: 9.0 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, or quartzite
Slope range: 15 to 50 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from chert, shale, or quartzite
Slope range: 4 to 15 percent
Elevation: 6,400 to 6,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth or slightly convex, north-facing side slopes of mountains
Distinctive present vegetation: Bluebunch wheatgrass, Idaho fescue

Inclusion 3
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices
Range seeding: Fair—large stones, erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Lerrow, Hapgood, and Cleavage soils—7s, nonirrigated
Range site: Lerrow soil—025X009N; Hapgood soil—025X004N; Cleavage soil—025X024N; Inclusion 1—025X009N; Inclusion 2—025X010N; Inclusion 3—025X012N

723—Lerrow-Cotant-Bregar association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Lerrow cobbly loam, 8 to 15 percent slopes (35 percent)
• Cotant cobbly loam, 8 to 15 percent slopes (30 percent)
• Bregar very gravelly coarse sandy loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Quarz very cobbly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Leevan very gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Arcia cobbly silt loam, 8 to 15 percent slopes (5 percent)

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower, south-facing, smooth side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,400 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.1 inches
Water-supplying capacity: 9.0 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,400 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,400 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 3
Percent pebbles on the surface: 75

Depth: 0 to 2 inches
Texture: Very gravelly coarse sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.1 inches
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper, smooth, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, slightly concave side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave areas on crests and upper side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bregar soil for named elements: Wild

herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices

Range seeding: Fair—large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Moderate—depth to rock, too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bregar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Lerrow soil—6s, nonirrigated; Cotant soil—7s, nonirrigated; Bregar soil—7s, nonirrigated
Range site: Lerrow soil—025X009N; Cotant soil—025X017N; Bregar soil—025X051N; Inclusion 1—025X009N; Inclusion 2—025X017N; Inclusion 3—025X012N

740—Connel extremely gravelly coarse sandy loam, 0 to 2 percent slopes

Map Unit Setting

Position on landscape: Stream terraces

Composition

Major component:
• Connel extremely gravelly coarse sandy loam, 0 to 2 percent slopes (95 percent)
Contrasting inclusion:
• Inclusion 1: Orovada fine sandy loam, 0 to 4 percent slopes (5 percent)

Characteristics of the Connel Soil

Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Stream terraces
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, Indian ricegrass, needleandthread, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Extremely gravelly coarse sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 20 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline

Depth: 20 to 60 inches
Texture: Stratified very gravelly loamy sand to extremely gravelly coarse sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate

Available water capacity: 3.6 to 4.4 inches
Water-supplying capacity: 7.0 to 9.0 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.05; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusion

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan skirts
Distinctive present vegetation: Big sagebrush, bottlebrush squirreltail

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Connel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Connel Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Connel soil—7s, nonirrigated
Range site: Connel soil—024X017N; Inclusion 1—025X019N

760—Yuko-Tuffo-Quarz association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Yuko gravelly sandy loam, 30 to 50 percent slopes (35 percent)
• Tuffo fine sandy loam, 30 to 50 percent slopes (25 percent)
• Quarz very gravelly loam, 8 to 15 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: McIvey gravelly loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Akler very cobbly clay loam, 15 to 30 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Upper, smooth side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow

Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Upper, convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,000 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, smooth side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 2
Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Lower, convex side slopes of hills
Distinctive present vegetation: Low sagebrush, Sandberg bluegrass
Inclusion 3
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Yuko, Tuffo, and Quarz soils—7s, nonirrigated
Range site: Yuko soil—025X015N; Tuffo soil—025X015N; Quarz soil—025X014N; Inclusion 1—025X012N; Inclusion 2—025X018N; Inclusion 3—none

761—Yuko-Tuffo-Bregar association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Yuko gravelly sandy loam, 30 to 50 percent slopes (40 percent)
• Tuffo fine sandy loam, 30 to 50 percent slopes (25 percent)
• Bregar extremely cobbly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: McIvey gravelly loam, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Akler cobbly clay loam, 15 to 30 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Upper, smooth side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—4
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Upper, convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 30
Percent pebbles on the surface: 45

Depth: 0 to 2 inches
Texture: Extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.1 inches
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.02; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow
Position on landscape: Lower, smooth side slopes of hills
Distinctive present vegetation: Low sagebrush, Sandberg bluegrass

Inclusion 3
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bregar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—depth to rock, slope, large stones
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Yuko, Tuffo, and Bregar soils—7s, nonirrigated
Range site: Yuko soil—025X015N; Tuffo soil—025X015N; Bregar soil—025X022N; Inclusion 1—025X012N; Inclusion 2—025X018N; Inclusion 3—none

762—Yuko-Bilbo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Yuko very gravelly loam, 30 to 50 percent slopes (50 percent)
• Bilbo cobbly loam, 15 to 30 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Vanwyper clay loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Kleckner very gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Tuffo fine sandy loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Upper, convex side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff
Slope range: 30 to 50 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Upper, slightly concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay loam

Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 7 to 9 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Lower side slopes of hills
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 2
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 3
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Lower, convex side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty, large stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Yuko and Bilbo soils—7s, nonirrigated
Range site: Yuko soil—025X015N; Bilbo soil—025X015N; Inclusion 1—025X019N; Inclusion 2—025X014N; Inclusion 3—025X019N

763—Yuko-Tuffo-Yuko, moderately steep association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Yuko gravelly sandy loam, 4 to 15 percent slopes (35 percent)
• Tuffo fine sandy loam, 2 to 8 percent slopes (30 percent)
• Yuko very gravelly sandy loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Tuffo coarse sandy loam, 30 to 50 percent slopes (7 percent)

• Inclusion 2: Orovada fine sandy loam, 4 to 15 percent slopes (6 percent)
• Inclusion 3: Aridic Duric Haploxerolls silt loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 4 to 15 percent
Elevation: 5,300 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Crests of hills
Parent material: Residuum derived from tuff
Slope range: 2 to 8 percent
Elevation: 5,300 to 6,500 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Upper, convex side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Durixerollic Camborthids, loamy, mixed, mesic
Position on landscape: Fan aprons
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 3
Classification: Aridic Duric Haploxerolls, fine-silty, mixed, frigid
Position on landscape: Slightly concave, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the moderately steep Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, depth to rock
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock

Local roads and streets: Moderate—depth to rock, frost action
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Yuko soils and the Tuffo soil—7s, nonirrigated
Range site: Yuko soil—025X019N; Tuffo soil—025X019N; the moderately steep Yuko soil—025X015N; Inclusion 1—025X015N; Inclusion 2—025X019N; Inclusion 3—025X027N

764—Yuko-Tuffo-Upsteer association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Yuko very gravelly coarse sandy loam, 30 to 50 percent slopes (40 percent)
• Tuffo fine sandy loam, 30 to 50 percent slopes (30 percent)
• Upsteer silt loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Orovada fine sandy loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Tuffo very fine sandy loam, 2 to 8 percent slopes (5 percent)
• Inclusion 3: Bilbo loam, 2 to 8 percent slopes (4 percent)
• Inclusion 4: Hunewill gravelly loam, 4 to 15 percent slopes (1 percent)

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly coarse sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 30 to 50 percent

Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Upsteer Soil

Classification: Aridic Duric Haploxerolls, fine-silty, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Loess over alluvium derived from tuff
Slope range: 30 to 50 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, basin wildrye, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 35 to 61 inches
Texture: Loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11.5 to 13 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Fan aprons
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 2
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Crests of hills
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 3
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 4
Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Upsteer soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Upsteer Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Yuko soil—7s, nonirrigated; Tuffo soil—7s, nonirrigated; Upsteer soil—7e, nonirrigated
Range site: Yuko soil—025X015N; Tuffo soil—025X015N; Upsteer soil—025X027N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

770—Gochea-Donna association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Gochea loam, 4 to 15 percent slopes (50 percent)
• Donna gravelly loam, 4 to 15 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Durixerollic Camborthids, coarse-loamy, mixed, frigid, 4 to 15 percent slopes (8 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (7 percent)

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Big sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, Webber ricegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, coarse-loamy, mixed, frigid
Position on landscape: Concave foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid

Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Gochea Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Rooting depth, slope, erodes easily
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gochea soil—4e, irrigated, 6c, nonirrigated; Donna soil—7s, nonirrigated
Range site: Gochea soil—025X014N; Donna soil—025X018N; Inclusion 1—025X014N; Inclusion 2—025X003N

771—Gochea-Welch, drained-Welch association

Map Unit Setting

Position on landscape: Basin floors, fan piedmonts

Composition

Major components:
• Gochea gravelly loam, 4 to 15 percent slopes (45 percent)
• Welch silt loam, drained, 0 to 2 percent slopes (25 percent)
• Welch silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Durixerollic Camborthids, loamy-skeletal, mixed, frigid, 4 to 15 percent slopes (10 percent)
• Inclusion 2: Ocala silt loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 7.0 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—4; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Characteristics of the Drained Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 12 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Tufted hairgrass, Nevada bluegrass, alpine timothy

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.6 to 13 inches
Water-supplying capacity: 12 to 16 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, frigid
Position on landscape: Fan skirts
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Rubber rabbitbrush, black greasewood, inland saltgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, cropland, pasture
Suitability of the Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the drained Welch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—poor
Suitability of the Welch soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—good

Suitability and Limitations of the Gochea Soil for Various Uses and Practices
Range seeding: Fair—too arid, small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Droughty, rooting depth, slope
Terraces and diversions: Slope, too sandy

Suitability and Limitations of the Drained Welch Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Favorable
Terraces and diversions: Favorable

Suitability and Limitations of the Welch Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—low strength, wetness, shrink-swell potential
Topsoil: Fair—small stones
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—wetness
Local roads and streets: Severe—flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Flooding, frost action
Irrigation: Wetness, flooding
Terraces and diversions: Wetness

Interpretive Groups

Capability classification: Gochea soil—4e, irrigated, 6c, nonirrigated; the drained Welch soil—2w, irrigated, 6w, nonirrigated; Welch soil—5w, irrigated and nonirrigated
Range site: Gochea soil—025X014N; the drained Welch soil—025X003N; Welch soil—025X005N; Inclusion 1—025X014N; Inclusion 2—024X007N

772—Gochea-Gochea, gravelly-Tuffo association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Gochea loam, 4 to 15 percent slopes (45 percent)
• Gochea gravelly loam, 2 to 4 percent slopes (20 percent)

• Tuffo gravelly sandy loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 0 to 2 percent slopes (10 percent)
• Inclusion 2: Stampede loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gravelly Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 2 to 4 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow

Available water capacity: 4.0 to 7.0 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—4; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.0 to 1.3 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the gravelly Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Gochea Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action, slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Rooting depth, slope, erodes easily

Terraces and diversions: Too sandy, slope, erodes easily

Suitability and Limitations of the Gravelly Gochea Soil for Various Uses and Practices

Range seeding: Fair—too arid, small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Rooting depth, slope, droughty
Terraces and diversions: Too sandy

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, erodes easily
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gochea soil—4e, irrigated, 6c, nonirrigated; the gravelly Gochea soil—3e, irrigated, 6c, nonirrigated; Tuffo soil—7s, nonirrigated
Range site: Both Gochea soils—025X014N; Tuffo soil—025X019N; Inclusion 1—025X014N; Inclusion 2—025X014N

773—Gochea-Samor-Nirac association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Gochea silt loam, 4 to 15 percent slopes (45 percent)
• Samor very gravelly loam, 15 to 50 percent slopes (25 percent)
• Nirac gravelly silt loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 8 to 30 percent slopes (5 percent)
• Inclusion 2: Graley very gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Lithic Argixerolls, clayey, montmorillonitic, frigid, 4 to 15 percent slopes (5 percent)

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly concave summits of hills
Parent material: Colluvium derived from conglomerate and influenced by loess
Slope range: 4 to 15 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 20 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 20 to 47 inches
Texture: Cobble sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 47 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 7.3 to 8.3 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: B

Erosion factors (surface layer): K value—.43; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Samor Soil

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Big sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 6 to 19 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.5 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Nirac Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 5,200 to 6,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 14 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 25 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.8 to 4.8 inches
Water-supplying capacity: 7.5 to 11 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Position on landscape: Smooth, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex summits of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue
Inclusion 3
Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Position on landscape: Smooth summits of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Gochea soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Samor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—fair
Suitability of the Nirac soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Gochea Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—thin layer
Topsoil: Poor—area reclaim, small stones
Daily cover for landfill: Fair—depth to rock, large stones, slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability of the Samor Soil for Woodland
Site index for common trees: Utah juniper—23
Most important native understory plants: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Suitability and Limitations of the Samor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Nirac Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Gochea soil—6c, nonirrigated; Samor soil—7s, nonirrigated; Nirac soil—7e, nonirrigated
Range site: Gochea soil—025X014N; Samor soil—025X059N; Nirac soil—025X012N; Inclusion 1—025X019N; Inclusion 2—025X012N; Inclusion 3—025X014N

775—Gochea-Donna-Stampede association

Map Unit Setting

Position on landscape: Fan piedmont remnants, flood plains

Composition

Major components:
• Gochea loam, 4 to 15 percent slopes (35 percent)
• Donna silt loam, 2 to 8 percent slopes (30 percent)
• Stampede gravelly loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 15 to 30 percent slopes (10 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2

percent slopes, frequently flooded (2 percent)
• Inclusion 3: Crooked Creek silty clay loam, drained, 0 to 2 percent slopes, rarely flooded (2 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (1 percent)

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 21 to 41 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 60 inches
Texture: Extremely gravelly sand
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Very slow
Available water capacity: 3.7 to 4.2 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, sedge

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Gochea soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs

(nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Gochea Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Rooting depth, slope, erodes easily
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Donna Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Stampede Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—small stones, too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Gochea soil—4e, irrigated, 6c, nonirrigated; Donna soil—7s, nonirrigated; Stampede soil—4e, irrigated, 6s, nonirrigated
Range site: Gochea soil—025X014N; Donna soil—025X018N; Stampede soil—025X014N; Inclusion 1—025X027N; Inclusion 2—025X005N; Inclusion 3—025X003N; Inclusion 4—025X003N

780—Cowgil-Linkup-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cowgil very cobbly sandy loam, 15 to 50 percent slopes (60 percent)
• Linkup gravelly clay loam, 4 to 15 percent slopes (15 percent)
• Rock outcrop (15 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 4 to 15 percent slopes (5 percent)

Characteristics of the Cowgil Soil

Classification: Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite or welded tuff
Slope range: 15 to 50 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very cobbly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 30 inches
Texture: Very gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 61 inches
Texture: Very cobbly loamy sand
Structure: Single grained
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.0 to 3.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.10; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Linkup Soil

Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,100 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 8 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 16 inches
Texture: Gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 16 to 20 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 2.7 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills
Elevation: 5,900 to 6,100 feet
Distinctive present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Concave crests and foot slopes of hills
Distinctive present vegetation: Low sagebrush, Sandberg bluegrass
Inclusion 2
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Convex foot slopes of hills
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cowgil soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Linkup soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cowgil Soil for Various Uses and Practices

Range seeding: Poor—too arid, large stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Linkup Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cowgil soil—7s, nonirrigated; Linkup soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Cowgil soil—025X019N; Linkup soil—025X018N; Rock outcrop—none; Inclusion 1—025X018N; Inclusion 2—025X019N

810—Nirac-Izod-Izod, very steep association

Map Unit Setting

Position on landscape: Hills, mountains

Composition

Major components:
• Nirac gravelly silt loam, 30 to 75 percent slopes (45 percent)
• Izod very gravelly loam, 15 to 50 percent slopes (25 percent)
• Izod extremely gravelly loam, 50 to 75 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Porrone very gravelly loam, 30 to 50 percent slopes (4 percent)
• Inclusion 3: Rock outcrop (3 percent)
• Inclusion 4: Welch silt loam, 2 to 4 percent slopes (1 percent)

Characteristics of the Nirac Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave, north- and east-facing side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 30 to 75 percent
Elevation: 5,300 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 14 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 14 to 25 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.8 to 4.8 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Convex side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,300 to 7,200 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Steep Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Convex side slopes of hills and mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 50 to 75 percent
Elevation: 5,300 to 7,200 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 3 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 to 1.0 inch
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy-skeletal, mixed (calcareous), mesic
Position on landscape: Sightly convex, south- and west-facing side slopes of hills and mountains
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave, south- and west-facing side slopes of hills and mountains
Distinctive present vegetation: Big sagebrush, bottlebrush squirreltail
Inclusion 3
Position on landscape: Crests and side slopes of hills and mountains
Distinctive present vegetation: None
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills and mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Nirac soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the very steep Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Nirac Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Izod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Very Steep Izod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Nirac soil—7e, nonirrigated; both Izod soils—7s, nonirrigated
Range site: Nirac soil—025X012N; both Izod soils—024X030N; Inclusion 1—025X015N; Inclusion 2—025X019N; Inclusion 3—none; Inclusion 4—025X003N

813—Spilock-Gochea-Chiara association

Map Unit Setting

Position on landscape: Fan piedmont remnants, low hills

Composition

Major components:
- Spilock very gravelly loam, 15 to 50 percent slopes (40 percent)
- Gochea silt loam, 8 to 15 percent slopes (30 percent)
- Chiara silt loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Izod very gravelly loam, 30 to 50 percent slopes (4 percent)
- Inclusion 2: Grina loam, 15 to 30 percent slopes (4 percent)
- Inclusion 3: Kelk silt loam, 8 to 15 percent slopes (2 percent)

Characteristics of the Spilock Soil

Classification: Xerollic Paleorthids, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Alluvium derived from limestone and conglomerate
Slope range: 15 to 50 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Black sagebrush, Utah juniper

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 45

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 10 to 30 inches
Texture: Indurated hardpan
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 8 to 14 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.6 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gochea Soil

Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave side slopes of low hills in the higher areas
Parent material: Mixed alluvium influenced by loess
Slope range: 8 to 15 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Mountain big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 8 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 8 to 20 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 20 to 47 inches
Texture: Cobble sandy loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 47 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 7.3 to 8.3 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.43; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,400 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Upper side slopes of hills
Distinctive present vegetation: Black sagebrush, Indian ricegrass

Inclusion 2
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Lower side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Lower, concave side slopes of fan piedmont remnants and the adjacent inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Spilock soil for named elements: Wild herbaceous plants (nonirrigated)—poor; coniferous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Gochea soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chiara soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Spilock Soil for Woodland
Site index for common trees: Utah juniper—25
Most important native understory plants: Black sagebrush, Thurber needlegrass

Suitability and Limitations of the Spilock Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—cemented pan, slope
Topsoil: Poor—cemented pan, small stones, slope
Daily cover for landfill: Poor—cemented pan, slope
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—cemented pan, slope
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gochea Soil for Various Uses and Practices
Range seeding: Fair—too arid

Roadfill: Poor—thin layer
Topsoil: Poor—area reclaim, small stones
Daily cover for landfill: Fair—depth to rock, large stones, slope
Shallow excavations: Moderate—slope
Local roads and streets: Moderate—slope, frost action, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Spilock soil—7s, nonirrigated; Gochea soil—6c, nonirrigated; Chiara soil—7s, nonirrigated
Range site: Spilock soil—025X060N; Gochea soil—025X014N; Chiara soil—025X019N; Inclusion 1—024X030N; Inclusion 2—025X059N; Inclusion 3—025X019N

814—Denay-Siri-Bobs association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
• Denay very gravelly loam, 30 to 50 percent slopes (35 percent)
• Siri very gravelly loam, 30 to 50 percent slopes (30 percent)
• Bobs gravelly loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: McIvey very gravelly loam, 15 to 50 percent slopes (6 percent)
• Inclusion 2: Donna gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Crooked Creek clay loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Xeric Torriorthents, loamy-skeletal, mixed, mesic, shallow, 30 to 50 percent slopes (2 percent)

Characteristics of the Denay Soil

Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, north-facing side slopes of hills
Parent material: Colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,500 feet
Dominant present vegetation: Big sagebrush, serviceberry, Sandberg bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 95 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 15 to 60 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.4 to 6.8 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Siri Soil

Classification: Xerollic Calciorthids, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,500 feet
Dominant present vegetation: Antelope bitterbrush, serviceberry, cheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 65

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 57 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 57 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.1 to 5.0 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.10; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bobs Soil

Classification: Aridic Petrocalcic Palexerolls, loamy, carbonatic, frigid, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Limestone alluvium influenced by loess
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,500 feet
Dominant present vegetation: Big sagebrush, serviceberry, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 13 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 to 19 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 29 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills and fan piedmont remnants
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 2
Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic, shallow
Position on landscape: Side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Denay soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Siri soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bobs soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Denay Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Siri Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bobs Soil for Various Uses and Practices
Range seeding: Poor—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Denay, Siri, and Bobs soils—7s, nonirrigated
Range site: Denay soil—025X012N; Siri soil—025X009N; Bobs soil—025X014N; Inclusion 1—025X012N; Inclusion 2—025X018N; Inclusion 3—025X003N; Inclusion 4—025X059N

832—Alburz-Alburz Variant association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Alburz loam, 0 to 2 percent slopes (45 percent)
• Alburz Variant loam, 0 to 4 percent slopes, frequently flooded (40 percent)
Contrasting inclusions:
• Inclusion 1: Welsum loam, 0 to 2 percent slopes (6 percent)
• Inclusion 2: Woofus loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Alburz Variant loam, 0 to 4 percent slopes, occasionally flooded (3 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Alburz Soil

Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,400 to 6,400 feet
Dominant present vegetation: Nevada bluegrass, sedge

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 20 inches
Texture: Stratified gravelly coarse sandy loam to gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 20 to 60 inches
Texture: Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequency—frequent; duration—very brief to long; months—April and May
Permeability: Moderately rapid
Available water capacity: 3.3 to 5.1 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Alburz Variant Soil

Classification: Typic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Natural levees on the flood plains
Parent material: Mixed alluvium
Slope range: 0 to 4 percent
Elevation: 5,400 to 6,400 feet
Dominant present vegetation: Nevada bluegrass, timothy, quaking aspen, cottonwood

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 12 inches
Texture: Loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 to 20 inches
Texture: Gravelly sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 20 to 60 inches
Texture: Very cobbly sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—brief; months—February through May
Permeability: Moderately rapid
Available water capacity: 3.2 to 3.8 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Flood plains
Distinctive present vegetation: Nevada bluegrass, sedge
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Wildrye, inland saltgrass
Inclusion 3
Classification: Typic Haplaquolls sandy-skeletal, mixed, frigid
Position on landscape: Natural levees on the flood

plains adjacent to the slightly entrenched part of stream channels
Distinctive present vegetation: Cottonwood

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position of landscape: Flood plains
Distinctive present vegetation: Alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Alburz soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Alburz Variant soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Alburz Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Improbable source—small stones
Gravel: Probable source
Drainage: Flooding, large stones, cutbanks cave
Irrigation: Wetness, droughty, rooting depth
Terraces and diversions: Large stones, erodes easily, wetness

Suitability of the Alburz Variant Soil for Woodland
Site index for common trees: Cottonwood—80
Most important native understory plants: Wiregrass, sedge

Suitability and Limitations of the Alburz Variant Soil for Various Uses and Practices
Range seeding: Fair—droughty
Roadfill: Fair—large stones, wetness
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, large stones
Irrigation: Large stones, wetness, droughty
Terraces and diversions: Large stones, erodes easily, wetness

Interpretive Groups

Capability classification: Alburz soil—4w, irrigated, 6w, nonirrigated; Alburz Variant soil—5w, irrigated and nonirrigated
Range site: Alburz soil—025X005N; Alburz Variant soil—025X053N; Inclusion 1—025X005N; Inclusion 2—025X001N; Inclusion 3—025X053N; Inclusion 4—025X006N

834—Alburz-Welch association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
- Alburz loam, 0 to 2 percent slopes (55 percent)
- Welch silt loam, 0 to 2 percent slopes (35 percent)

Contrasting inclusions:
- Inclusion 1: Sonoma silt loam, 0 to 2 percent slopes (5 percent)
- Inclusion 2: Welsum loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Alburz Soil

Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,100 to 6,400 feet
Dominant present vegetation: Nevada bluegrass, streambank wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky

Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 20 inches
Texture: Stratified gravelly coarse sandy loam to gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 20 to 60 inches
Texture: Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequency—occasional; duration—very brief to long; months—April and May
Permeability: Moderately rapid
Available water capacity: 3.3 to 5.1 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,100 to 6,400 feet
Dominant present vegetation: Basin big sagebrush, rubber rabbitbrush

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 12 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Flood plains
Distinctive present vegetation: Nevada bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Alburz soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Welch soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—poor

Suitability and Limitations of the Alburz Soil for Various Uses and Practices
Range seeding: Good

Roadfill: Fair—wetness
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Improbable source—small stones
Gravel: Probable source
Drainage: Flooding, large stones, cutbanks cave
Irrigation: Wetness, droughty, rooting depth
Terraces and diversions: Large stones, erodes easily, wetness

Suitability and Limitations of the Welch Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Favorable
Terraces and diversions: Favorable

Interpretive Groups

Capability classification: Alburz soil—4w, irrigated, 6w, nonirrigated; Welch soil—2w, irrigated, 6w, nonirrigated
Range site: Alburz soil—025X006N; Welch soil—025X003N; Inclusion 1—025X003N; Inclusion 2—025X006N

835—Alburz-Ocala association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Alburz loam, 0 to 2 percent slopes (45 percent)
• Ocala silt loam, 0 to 2 percent slopes (45 percent)
Contrasting inclusions:
• Inclusion 1: Ocala very fine sandy loam, 0 to 2 percent slopes (8 percent)
• Inclusion 2: Bloor silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Alburz Soil

Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains adjacent to stream channels
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,400 feet
Dominant present vegetation: Willow, silver sagebrush, Nevada bluegrass, slender wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 20 inches
Texture: Stratified gravelly coarse sandy loam to gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 20 to 60 inches
Texture: Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 18 to 36 inches
Flooding: Frequency—occasional; duration—very brief to long; months—April and May
Permeability: Moderately rapid
Available water capacity: 3.3 to 5.1 inches
Water-supplying capacity: 12 to 19 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ocala Soil

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,400 feet
Dominant present vegetation: Black greasewood, rubber rabbitbrush, basin wildrye, inland saltgrass

Climatic Data

Average annual precipitation: About 7 inches
Average annual air temperature: About 50 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 20 to 50 inches
Texture: Silt loam
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Depth: 50 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 8 mmhos per cm
Sodicity (SAR): 13 to 46

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 36 to 42 inches
Flooding: Frequency—occasional; duration—brief to long; months—March through June
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 13 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: High

Contrasting Inclusions

Inclusion 1

Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, inland saltgrass

Inclusion 2

Classification: Durixerollic Natrargids, fine-silty, mixed, mesic
Position on landscape: Higher areas on the flood plains
Distinctive present vegetation: Black greasewood, inland saltgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Alburz soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Ocala soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—fair; shallow water areas—fair

Suitability and Limitations of the Alburz Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, too sandy, small stones
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—flooding
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, wetness
Sand: Improbable source—small stones
Gravel: Probable source
Drainage: Flooding, large stones, cutbanks cave
Irrigation: Wetness, droughty, rooting depth
Terraces and diversions: Large stones, erodes easily, wetness

Suitability and Limitations of the Ocala Soil for Various Uses and Practices

Range seeding: Poor—excess salts, excess sodium, too crusty

Roadfill: Fair—low strength, shrink-swell potential
Topsoil: Poor—excess sodium
Daily cover for landfill: Poor—excess sodium
Shallow excavations: Moderate—wetness, flooding
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Severe—piping, excess sodium
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, erodes easily, flooding
Terraces and diversions: Erodes easily, percs slowly

Interpretive Groups

Capability classification: Alburz and Ocala soils—4w, irrigated, 6w, nonirrigated
Range site: Alburz soil—025X006N; Ocala soil—024X007N; Inclusion 1—024X008N; Inclusion 2—024X007N

839—Woofus-Tweba-Devilsgait association

Map Unit Setting

Position on landscape: Flood plains

Composition

Major components:
• Woofus loam, 0 to 2 percent slopes (40 percent)
• Tweba very fine sandy loam, 0 to 2 percent slopes (30 percent)
• Devilsgait silt loam, gravelly substratum, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Woofus silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Sonoma silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 3: Woofus silty clay loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Ocala silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Woofus Soil

Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Natural levees on the flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 8 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 8 to 30 inches
Texture: Stratified loam to silty clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified loamy fine sand to gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 24 inches
Flooding: Frequency—frequent; duration—brief; months—March through June
Permeability: Moderately slow
Available water capacity: 9.0 to 9.5 inches
Water-supplying capacity: 10 to 13 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.32; T value—3; wind erodibility group—4L
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Characteristics of the Tweba Soil

Classification: Aeric Fluvaquents, coarse-loamy, mixed (calcareous), mesic
Position on landscape: Higher areas on the flood plains
Parent material: Mixed alluvium
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet

Dominant present vegetation: Wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 19 inches
Texture: Very fine sandy loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Very strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 34 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Very strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 34 to 60 inches
Texture: Stratified very fine sandy loam to loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 12 to 18 inches
Flooding: Frequency—frequent; duration—very brief to brief; months—February through June
Permeability: Moderate
Available water capacity: 6.0 to 8.6 inches
Water-supplying capacity: 10 to 13 inches
Runoff: Very slow
Hydrologic group: D
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Devilsgait Soil

Classification: Cumulic Haplaquolls, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 5,300 to 5,600 feet
Dominant present vegetation: Wildrye, Nevada bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 100 days

Typical Profile

Depth: 0 to 13 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 13 to 42 inches
Texture: Stratified silt loam to silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 42 to 54 inches
Texture: Stratified gravelly silt loam to silty clay loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 54 to 63 inches
Texture: Extremely gravelly coarse sand
Structure: Single grained
Consistence: Loose
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 0 to 18 inches
Flooding: Frequency—frequent; duration—long; months—March through June
Permeability: Moderately slow
Available water capacity: 10 to 11.5 inches
Water-supplying capacity: 10 to 13 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Flood plains adjacent to fan piedmont remnants
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic
Position on landscape: Slightly concave areas on the flood plains
Distinctive present vegetation: Basin big sagebrush, wildrye

Inclusion 4
Classification: Aeric Halaquepts, fine-silty, mixed (calcareous), mesic
Position on landscape: Alluvial flats
Distinctive present vegetation: Black greasewood, basin wildrye, alkali sacaton

Major Uses

Current uses: Livestock grazing, wildlife habitat, hayland, pasture
Suitability of the Woofus soil for named elements: Grain and seed crops (irrigated)—very poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—good; shallow water areas—fair
Suitability of the Tweba soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair
Suitability of the Devilsgait soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—good; shallow water areas—fair

Suitability and Limitations of the Woofus Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—wetness
Topsoil: Fair—area reclaim, small stones
Daily cover for landfill: Poor—seepage, too sandy, wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, flooding, frost action
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—seepage, piping, wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, frost action, cutbanks cave
Irrigation: Wetness, rooting depth, flooding
Terraces and diversions: Wetness, too sandy

Suitability and Limitations of the Tweba Soil for Various Uses and Practices
Range seeding: Fair—excess salts
Roadfill: Fair—wetness
Topsoil: Good
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—piping, wetness
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Devilsgait Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—wetness
Topsoil: Poor—wetness
Daily cover for landfill: Poor—wetness
Shallow excavations: Severe—cutbanks cave, wetness
Local roads and streets: Severe—low strength, wetness, flooding
Pond reservoir areas: Moderate—seepage
Embankments, dikes, and levees: Severe—wetness
Sand: Probable source
Gravel: Probable source
Drainage: Flooding, frost action
Irrigation: Wetness, erodes easily, flooding
Terraces and diversions: Erodes easily, wetness

Interpretive Groups

Capability classification: Woofus soil—5w, irrigated and nonirrigated; Tweba soil—6w, nonirrigated; Devilsgait soil—5w, irrigated and nonirrigated
Range site: Woofus soil—025X001N; Tweba soil—025X001N; Devilsgait soil—025X001N; Inclusion 1—025X003N; Inclusion 2—024X006N; Inclusion 3—025X001N; Inclusion 4—024X007N

840—Ninemile-Quarz-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Ninemile gravelly loam, 8 to 15 percent slopes (40 percent)
• Quarz very gravelly loam, 8 to 15 percent slopes (30 percent)
• Rock outcrop (15 percent)
Contrasting inclusions:
• Inclusion 1: Yuko gravelly silt loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: McIvey silt loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Ninemile Soil

Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Position on landscape: Crests and slightly concave side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite or welded tuff
Slope range: 8 to 15 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 5 to 12 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 12 to 16 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.0 to 2.4 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff or rhyolite
Slope range: 8 to 15 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills
Elevation: 6,200 to 7,000 feet
Distinctive present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Lower, convex, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 3
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Ninemile soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Ninemile Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Ninemile soil—7s, nonirrigated; Quarz soil—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Ninemile soil—025X017N; Quarz soil—025X014N; Rock outcrop—none; Inclusion 1—025X015N; Inclusion 2—025X003N; Inclusion 3—025X012N

851—Loomis-Izod association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Loomis very cobbly loam, 15 to 30 percent slopes (45 percent)
• Izod very gravelly loam, 15 to 50 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Vanwyper very cobbly loam, 15 to 50 percent slopes (3 percent)
• Inclusion 3: Quarz very gravelly loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Linkup very gravelly loam, 8 to 15 percent slopes (2 percent)

Characteristics of the Loomis Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from conglomerate
Slope range: 15 to 30 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Black sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 7 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Very cobbly clay
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 11 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.0 to 1.9 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 50 percent
Elevation: 5,300 to 5,700 feet
Dominant present vegetation: Black sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Lower, slightly concave side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper, slightly concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 4
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Upper part of the crests of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Loomis soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Loomis Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Izod Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Loomis and Izod soils—7s, nonirrigated
Range site: Loomis soil—024X030N; Izod soil—024X030N; Inclusion 1—none; Inclusion 2—025X015N; Inclusion 3—025X009N; Inclusion 4—025X018N

852—Loomis-Vanwyper-Norfork association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Loomis very cobbly loam, 4 to 15 percent slopes (35 percent)
• Vanwyper gravelly loam, 15 to 30 percent slopes (30 percent)
• Norfork very cobbly silt loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Dewar loam, 0 to 4 percent slopes (10 percent)
• Inclusion 2: Bilbo cobbly loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Loomis Soil

Classification: Lithic Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly convex summits and upper side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,100 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Neutral

Depth: 2 to 7 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 11 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 8 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.0 to 1.9 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of hills
Parent material: Residuum and colluvium derived from andesite and rhyolite
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: .1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 10 inches
Texture: Gravely loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 10 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 25 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 3.5 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Norfork Soil

Classification: Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Slightly concave summits of hills
Parent material: Colluvium derived from andesite and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 2 inches
Texture: Very cobbly silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 12 inches
Texture: Gravelly silty clay

Structure: Prismatic
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 12 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: 21 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.7 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Inset fan remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Loomis soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Norfork soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Loomis Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—hard to pack, large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Suitability and Limitations of the Norfork Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock, cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Loomis soil—7s, nonirrigated; Vanwyper soil—7e, nonirrigated; Norfork soil—7s, nonirrigated
Range site: Loomis soil—024X030N; Vanwyper soil—025X019N; Norfork soil—024X030N; Inclusion 1—025X019N; Inclusion 2—025X019N

862—Loncan-Hapgood-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Loncan very gravelly loam, 30 to 75 percent slopes (40 percent)
- Hapgood very gravelly loam, 30 to 50 percent slopes (30 percent)
- Cleavage extremely gravelly loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Tusel gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Hackwood very gravelly loam, 15 to 30 percent slopes (3 percent)
- Inclusion 3: Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes (2 percent)

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or welded tuff
Slope range: 30 to 75 percent
Elevation: 7,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 7.0 to 10 inches
Runoff: Very rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or welded tuff
Slope range: 30 to 50 percent
Elevation: 7,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, mountain brome, Columbia needlegrass

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 to 46 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or welded tuff
Slope range: 15 to 50 percent
Elevation: 7,000 to 8,000 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, Idaho fescue
Inclusion 2
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen
Inclusion 3
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Letterman needlegrass, lupine

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Loncan Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—area reclaim, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Loncan, Hapgood, and Cleavage soils—7s, nonirrigated
Range site: Loncan soil—025X012N; Hapgood soil—025X004N; Cleavage soil—025X024N; Inclusion 1—025X010N; Inclusion 2—025X065N; Inclusion 3—025X028N

881—Kleckner-Fulstone-Stampede association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Kleckner cobbly loam, 4 to 15 percent slopes (35 percent)
- Fulstone gravelly loam, 2 to 15 percent slopes (35 percent)
- Stampede loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Welch silt loam, 0 to 2 percent slopes (7 percent)
- Inclusion 2: Linkup cobbly loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 8.4 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate

Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Fulstone Soil

Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Lower parts of the smooth summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 15 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 51 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 34 inches
Texture: Indurated hardpan
Consistence: Extremely hard, extremely firm

Depth: 34 to 57 inches
Texture: Extremely gravelly sandy clay
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Stampede Soil

Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 11 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 11 to 35 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 35 to 45 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.2 to 4.9 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D

Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Convex, north-facing side slopes of low hills
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Fulstone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Stampede soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—large stones
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small stones, slope
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Fulstone Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell potential
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Stampede Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, shrink-swell potential, low strength
Topsoil: Poor—too clayey
Daily cover for landfill: Poor—cemented pan, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Kleckner soil—7s, nonirrigated; Fulstone soil—7s, nonirrigated; Stampede soil—6s, nonirrigated
Range site: Kleckner soil—025X014N; Fulstone soil—025X018N; Stampede soil—025X014N; Inclusion 1—025X003N; Inclusion 2—025X018N

912—Tuffo-Yuko-Tuffo, moderately steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Tuffo fine sandy loam, 4 to 15 percent slopes (50 percent)
• Yuko very gravelly loam, 8 to 15 percent slopes (25 percent)
• Tuffo fine sandy loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 2 to 4 percent slopes (4 percent)
• Inclusion 2: Dacker silt loam, 2 to 8 percent slopes (4 percent)

• Inclusion 3: Crooked Creek silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Characteristics of the Moderately Steep Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
*Suitability of the moderately steep Tuffo soil for named elements:*Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock

Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Tuffo Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Tuffo soils and the Yuko soil—7s, nonirrigated
Range site: Both Tuffo soils—025X019N; Yuko soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X003N

913—Tuffo-Yuko-Vanwyper association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Tuffo fine sandy loam, 15 to 30 percent slopes (40 percent)
• Yuko gravelly sandy loam, 15 to 30 percent slopes (25 percent)
• Vanwyper very cobbly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Tuffo fine sandy loam, 30 to 50 percent slopes (4 percent)
• Inclusion 3: Gance very gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 4: Enko loam, 2 to 8 percent slopes (3 percent)

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,400 to 6,300 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Smooth side slopes of hills
Parent material: Residuum derived from tuffaceous sandstone
Slope range: 15 to 30 percent
Elevation: 5,400 to 6,300 feet
Dominant present vegetation: Big sagebrush, rabbitbrush, Sandberg bluegrass, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vanwyper Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly concave side slopes of hills
Parent material: Residuum and colluvium derived from tuff
Slope range: 15 to 30 percent
Elevation: 5,400 to 6,300 feet
Dominant present vegetation: Big sagebrush, cheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 45 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 8 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 8 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Mildly alkaline

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Inclusion 2
Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic

Position on landscape: Upper, convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Vanwyper soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vanwyper Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, low strength, large stones
Topsoil: Poor—large stones, slope
Daily cover for landfill: Poor—depth to rock, hard to pack, large stones
Shallow excavations: Severe—depth to rock, large stones, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones

Interpretive Groups

Capability classification: Tuffo, Yuko, and Vanwyper soils—7s, nonirrigated
Range site: Tuffo soil—025X019N; Yuko soil—025X015N; Vanwyper soil—025X015N; Inclusion 1—none; Inclusion 2—025X015N; Inclusion 3—025X019N; Inclusion 4—025X019N

920—Bullump-Gando-Tusel association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bullump very gravelly loam, 30 to 50 percent slopes (45 percent)
• Gando very gravelly loam, 15 to 30 percent slopes (25 percent)
• Tusel gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Hackwood gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Inpendence very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Colluvium derived from shale, chert, and quartzite with a component of loess
Slope range: 30 to 50 percent
Elevation: 7,600 to 8,200 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, Sandberg bluegrass

Climatic Data
Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F

Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or quartzite
Slope range: 15 to 30 percent
Elevation: 7,900 to 8,200 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or quartzite
Slope range: 30 to 50 percent
Elevation: 7,600 to 8,200 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.2 to 6.3 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Lower, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen, mountain brome

Inclusion 2
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 3
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gando Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bullump soil—7s, nonirrigated; Gando soil—7s, nonirrigated; Tusel soil—7e, nonirrigated
Range site: Bullump soil—025X016N; Gando soil—025X024N; Tusel soil—025X010N; Inclusion 1—025X065N; Inclusion 2—none; Inclusion 3—025X002N; Inclusion 4—025X003N

923—Bullump-Cleavage-Tusel association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bullump very gravelly loam, 15 to 30 percent slopes (45 percent)
• Cleavage extremely gravelly loam, 15 to 50 percent slopes (25 percent)
• Tusel very gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Hapgood very gravelly loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Tusel gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Entic Cryumbrepts, loamy-skeletal, mixed, 30 to 50 percent slopes (2 percent)
• Inclusion 4: Inpendence very gravelly loam, 15 to 50 percent slopes (1 percent)

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Colluvium derived from shale, chert, and quartzite with a component of loess
Slope range: 15 to 30 percent
Elevation: 7,000 to 8,100 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or quartzite
Slope range: 15 to 50 percent
Elevation: 7,000 to 8,100 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Slightly concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, chert, or quartzite
Slope range: 30 to 50 percent
Elevation: 7,000 to 8,100 feet
Dominant present vegetation: Mountain big sagebrush, mountain brome, Idaho fescue

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 to 49 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.2 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Lower, concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Inclusion 2
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Letterman needlegrass, tailcup lupine

Inclusion 4
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Mid or upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—depth to rock, thin layer, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope

Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—area reclaim, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bullump, Cleavage, and Tusel soils—7s, nonirrigated
Range site: Bullump soil—025X016N; Cleavage soil—025X024N; Tusel soil—025X004N; Inclusion 1—025X004N; Inclusion 2—025X010N; Inclusion 3—025X028N; Inclusion 4—025X002N

925—Bullump-Quarz-Gando association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bullump gravelly loam, 30 to 50 percent slopes (40 percent)
• Quarz very gravelly loam, 30 to 50 percent slopes (30 percent)
• Gando very gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
• Inclusion 1: Pachic Haploxerolls, loamy-skeletal, mixed, frigid, 15 to 30 percent slopes (8 percent)
• Inclusion 2: Sumine very gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Chen gravelly loam, 8 to 15 percent slopes (1 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Upper, concave, north-facing side slopes of mountains
Parent material: Colluvium derived from chert, shale, and quartzite with a component of loess
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue, mountain brome

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 23 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 5.6 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B

Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper, convex, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite, shale, or quartzite
Slope range: 30 to 50 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Gando Soil

Classification: Lithic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from chert, quartzite, and rhyolite
Slope range: 15 to 30 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 85 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 17 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 17 to 22 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.2 to 1.7 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, basin wildrye
Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave crests of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gando soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gando Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bullump soil—7e, nonirrigated; Quarz soil—7s, nonirrigated; Gando soil—7s, nonirrigated
Range site: Bullump soil—025X016N; Quarz soil—025X009N; Gando soil—025X024N; Inclusion 1—025X029N; Inclusion 2—025X009N; Inclusion 3—025X017N; Inclusion 4—none

926—Bullump-Pernty-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bullump very gravelly loam, 30 to 50 percent slopes (35 percent)
• Pernty very gravelly loam, 15 to 30 percent slopes (30 percent)
• Cleavage very cobbly loam, 8 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hackwood loam, 4 to 15 percent slopes (7 percent)
• Inclusion 2: Entic Cryumbrepts, loamy-skeletal, mixed, 15 to 30 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (3 percent)

• Inclusion 4: Crooked Creek silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Bullump Soil

Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South- and west-facing side slopes of mountains
Parent material: Colluvium derived from rhyolite and influenced by loess
Slope range: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 35

Depth: 0 to 23 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 23 to 54 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 54 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.3 to 5.2 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: North- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, serviceberry, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid

Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 8 to 30 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Low sagebrush, black sagebrush, antelope bitterbrush, bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Lower, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Inclusion 2
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Letterman needlegrass, tailcup lupine

Inclusion 3
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bullump soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bullump Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones

Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bullump, Pernty, and Cleavage soils—7s, nonirrigated
Range site: Bullump soil—025X016N; Pernty soil—025X012N; Cleavage soil—025X024N; Inclusion 1—025X065N; Inclusion 2—025X028N; Inclusion 3—none; Inclusion 4—025X006N

970—Izod, steep-Wedekind-Izod association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Izod very gravelly loam, 30 to 50 percent slopes (40 percent)
• Wedekind coarse sandy loam, 30 to 50 percent slopes (30 percent)
• Izod very gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Eboda loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Wedekind coarse sandy loam, 50 to 75 percent slopes (5 percent)
• Inclusion 3: Pachic Haploxerolls, loamy-skeletal, mixed, frigid, 30 to 50 percent slopes (3 percent)

Characteristics of the Steep Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 50 percent
Elevation: 5,100 to 6,000 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass, Sandburg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wedekind Soil

Classification: Aridic Argixerolls, loamy, mixed, mesic, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from rhyolite or andesite
Slope range: 30 to 50 percent
Elevation: 5,100 to 6,000 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass, Indian ricegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Coarse sandy loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 12 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 12 to 42 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.0 to 2.3 inches
Water-supplying capacity: 6.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from limestone
Slope range: 15 to 30 percent
Elevation: 5,100 to 6,000 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly concave, north- and east-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, loamy, mixed, mesic, shallow
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north- and east-facing side slopes of hills
Distinctive present vegetation: Basin wildrye, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the steep Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Wedekind soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Steep Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Wedekind Soil for Various Uses and Practices

Range seeding: Poor—droughty, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Izod soils—7s, nonirrigated; Wedekind soil—7e, nonirrigated
Range site: Both Izod soils—024X030N; Wedekind soil—025X021N; Inclusion 1—025X027N; Inclusion 2—025X021N; Inclusion 3—025X029N

971—Izod-Porrone association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Izod very gravelly loam, 30 to 50 percent slopes (50 percent)
- Porrone very gravelly loam, 30 to 50 percent slopes (35 percent)

Contrasting inclusions:
- Inclusion 1: Nirac very gravelly loam, 30 to 50 percent slopes (4 percent)
- Inclusion 2: Rock outcrop (4 percent)
- Inclusion 3: Cleavage extremely gravelly loam, 30 to 50 percent slopes (4 percent)
- Inclusion 4: Sumine very gravelly loam, 30 to 50 percent slopes (3 percent)

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 50 percent
Elevation: 5,200 to 6,300 feet
Dominant present vegetation: Black sagebrush, Indian ricegrass, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate

Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Porrone Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave, south- and west-facing side slopes of hills
Parent material: Colluvium derived from limestone and influenced by loess
Slope range: 30 to 50 percent
Elevation: 5,200 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 35

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 18 to 65 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 4.1 to 4.9 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north- and east-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue
Inclusion 2
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Black sagebrush, low sagebrush, Idaho fescue
Inclusion 4
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south- and west-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Porrone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Porrone Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Izod and Porrone soils—7s, nonirrigated
Range site: Izod soil—024X030N; Porrone soil—025X019N; Inclusion 1—025X012N; Inclusion 2—none; Inclusion 3—025X024N; Inclusion 4—025X009N

972—Izod-Porrone-Chiara association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
• Izod very gravelly loam, 4 to 15 percent slopes (35 percent)
• Porrone very gravelly loam, 30 to 50 percent slopes (30 percent)
• Chiara very fine sandy loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Samor very cobbly loam, 15 to 50 percent slopes (8 percent)
• Inclusion 2: Spilock very gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 3: Rock outcrop (2 percent)
• Inclusion 4: Puett sandy loam, 15 to 50 percent slopes (1 percent)

Characteristics of Izod the Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Crests and upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 4 to 15 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Black sagebrush, Sandberg bluegrass, basin wildrye, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Porrone Soil

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Slightly concave side slopes of hills
Parent material: Colluvium derived from limestone and influenced by volcanic ash
Slope range: 30 to 50 percent
Elevation: 5,100 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Thurber needlegrass, basin wildrye

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 2
Percent pebbles on the surface: 35

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 18 to 65 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 4.1 to 4.9 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,100 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Very fine sandy loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, convex side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Xerollic Paleorthids, loamy-skeletal, carbonatic, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Utah juniper

Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Inclusion 4

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of hills or fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Porrone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chiara soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Porrone Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Izod, Porrone, and Chiara soils—7s, nonirrigated
Range site: Izod soil—024X030N; Porrone soil—025X019N; Chiara soil—025X019N; Inclusion 1—025X059N; Inclusion 2—025X060N; Inclusion 3—none; Inclusion 4—025X025N

973—Izod, extremely gravelly-Izod-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Izod extremely gravelly loam, 30 to 75 percent slopes (35 percent)
- Izod very gravelly loam, 4 to 15 percent slopes (30 percent)
- Rock outcrop (20 percent)

Contrasting inclusions:
- Inclusion 1: Samor very gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Porrone very gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 3: Chiara loam, 4 to 15 percent slopes (3 percent)
- Inclusion 4: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic, 4 to 30 percent slopes (2 percent)

Characteristics of the Extremely Gravelly Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Upper, convex side slopes of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 30 to 75 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 3 inches
Texture: Extremely gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 to 1.0 inch
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Izod Soil

Classification: Lithic Xeric Torriorthents, loamy-skeletal, carbonatic, mesic
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from limestone
Slope range: 4 to 15 percent
Elevation: 5,100 to 6,200 feet
Dominant present vegetation: Black sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 3 to 13 inches
Texture: Very gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Moderately alkaline

Depth: 13 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 0.5 inch to 1.1 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills
Elevation: 5,100 to 6,200 feet
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1

Classification: Lithic Xerollic Calciorthids, loamy-skeletal, mixed, mesic
Position on landscape: Lower, convex side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2

Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants

Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 4

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the extremely gravelly Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Izod soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Extremely Gravelly Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Izod Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Izod soils—7s, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Both Izod soils—024X030N; Rock outcrop—none; Inclusion 1—025X059N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X059N

990—Eboda-Hart Camp-Cotant association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Eboda loam, 4 to 15 percent slopes (45 percent)
- Hart Camp gravelly loam, 4 to 15 percent slopes (25 percent)
- Cotant cobbly loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Sumine very gravelly loam, 30 to 50 percent slopes (7 percent)
- Inclusion 2: Vanwyper very cobbly loam, 15 to 30 percent slopes (6 percent)
- Inclusion 3: Hussa loam, 0 to 2 percent slopes (1 percent)
- Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave summits and side slopes of hills
Parent material: Loess over residuum derived from tuff
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hart Camp Soil

Classification: Aridic Argixerolls, loamy, mixed, frigid, shallow
Position on landscape: Slightly convex summits and side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass, basin wildrye

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 7 to 11 inches
Texture: Gravelly sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 11 to 24 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.2 to 2.6 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Slow
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Slightly concave summits and side slopes of hills
Parent material: Residuum derived from tuff
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.0 inches

Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Upper, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Lower, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hart Camp soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hart Camp Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Eboda soil—6c, nonirrigated; Hart Camp soil—7s, nonirrigated; Cotant soil—7s, nonirrigated
Range site: Eboda soil—025X027N; Hart Camp soil—025X027N; Cotant soil—025X017N; Inclusion 1—025X009N; Inclusion 2—025X019N; Inclusion 3—025X003N; Inclusion 4—none

992—Eboda-Loncan-Leevan association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Eboda gravelly loam, 15 to 30 percent slopes (40 percent)
• Loncan very gravelly loam, 30 to 50 percent slopes (25 percent)

• Leevan cobbly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Sumine gravelly loam, 15 to 50 percent slopes (9 percent)
• Inclusion 2: Hussa loam, 0 to 4 percent slopes (3 percent)
• Inclusion 3: Rock outcrop (2 percent)
• Inclusion 4: Crooked Creek silty clay loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly concave side slopes of mountains
Parent material: Loess over residuum derived from shale, sandstone, or conglomerate
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,200 feet
Dominant present vegetation: Big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, or conglomerate
Slope range: 30 to 50 percent
Elevation: 6,000 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7

Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Leevan Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth and convex, north- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from shale, sandstone, or conglomerate
Slope range: 15 to 30 percent
Elevation: 6,000 to 7,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 20
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 9 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 14 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 14 to 24 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 24
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.8 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Adjacent to the entrenched part of stream channels in narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 3
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None
Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Leevan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Eboda Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope

Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Leevan Soil for Various Uses and Practices

Range seeding: Fair—droughty, large stones
Roadfill: Poor—depth to rock, shrink-swell potential
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Eboda soil—6e, nonirrigated; Loncan soil—7s, nonirrigated; Leevan soil—7s, nonirrigated
Range site: Eboda soil—025X027N; Loncan soil—025X012N; Leevan soil—025X017N; Inclusion 1—025X009N; Inclusion 2—025X003N; Inclusion 3—none; Inclusion 4—025X005N

993—Eboda-Quarz-Loncan association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Eboda gravelly loam, 15 to 30 percent slopes (40 percent)
• Quarz very gravelly loam, 30 to 50 percent slopes (30 percent)
• Loncan very gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Eboda gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Hussa loam, drained, 2 to 8 percent slopes (3 percent)
• Inclusion 4: Alburz very gravelly loam, drained, 2 to 8 percent slopes (2 percent)

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Lower, smooth, north-facing side slopes of hills
Parent material: Loess over residuum derived from shale, sandstone, or conglomerate
Slope range: 15 to 30 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches

Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.9 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from shale, sandstone, or conglomerate
Slope range: 30 to 50 percent
Elevation: 5,900 to 6,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from shale, sandstone, or conglomerate
Slope range: 30 to 50 percent
Elevation: 5,900 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, Thurber needlegrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Upper, smooth, north-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Position on landscape: Side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Fluvaquentic Haplaquolls, fine-loamy, mixed (calcareous), frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Eboda soil—6e, nonirrigated; Quarz soil—7s, nonirrigated; Loncan soil—7s, nonirrigated
Range site: Eboda soil—025X027N; Quarz soil—025X009N; Loncan soil—025X012N; Inclusion 1—025X012N; Inclusion 2—none; Inclusion 3—025X003N; Inclusion 4—025X003N

1230—Fulstone-Hunnton association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Fulstone gravelly loam, 2 to 8 percent slopes (45 percent)
• Hunnton loam, 4 to 15 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Short Creek cobbly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Aridic Argixerolls, fine, montmorillonitic, frigid, 15 to 30 percent slopes (4 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the Fulstone Soil

Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Low sagebrush, Nevada bluegrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 51 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 34 inches
Texture: Indurated hardpan
Consistence: Extremely hard, extremely firm

Depth: 34 to 57 inches
Texture: Extremely gravelly sandy clay
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.8 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a seasonal high water table: 20 to 40 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains next to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass
Inclusion 4
Classification: Cumulic Haplaquolls fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Fulstone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Fulstone Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell potential
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Interpretive Groups

Capability classification: Fulstone soil—7s, nonirrigated; Hunnton soil—4e, irrigated, 6s, nonirrigated
Range site: Fulstone soil—025X018N; Hunnton soil—025X019N; Inclusion 1—025X003N; Inclusion 2—025X015N; Inclusion 3—025X014N; Inclusion 4—025X005N

1231—Fulstone-Dacker-Wieland association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Fulstone gravelly loam, 2 to 15 percent slopes (50 percent)
- Dacker silt loam, 4 to 15 percent slopes (20 percent)
- Wieland gravelly loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Hunnton silt loam, 2 to 8 percent slopes (5 percent)
- Inclusion 2: Gance very gravelly loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Fulstone Soil

Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 15 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 51 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 34 inches
Texture: Indurated hardpan
Consistence: Extremely hard, extremely firm

Depth: 34 to 57 inches
Texture: Extremely gravelly sandy clay
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.8 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,600 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Fulstone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Fulstone Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell potential
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dacker Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Fulstone soil—7s, nonirrigated; Dacker soil—4e, irrigated, 6s, nonirrigated; Wieland soil—6s, nonirrigated
Range site: Fulstone soil—025X018N; Dacker soil—025X019N; Wieland soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

1232—Fulstone-Dacker-Yuko association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Fulstone gravelly loam, 4 to 15 percent slopes (55 percent)
• Dacker silt loam, 4 to 15 percent slopes (20 percent)
• Yuko very gravelly sandy loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Wieland silt loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Zevadez silt loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Fulstone Soil

Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Slightly convex summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 51 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 3 inches
Texture: Gravelly loam
Structure: Platy

Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 34 inches
Texture: Indurated hardpan
Consistence: Extremely hard, extremely firm

Depth: 34 to 57 inches
Texture: Extremely gravelly sandy clay
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.8 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very firm
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow

Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff and tuffaceous sandstone
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Wyoming big sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly sandy loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5.0 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Sandberg bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Fulstone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Fulstone Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell potential
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones

Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Yuko Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Fulstone soil—7s, nonirrigated; Dacker soil—4e, irrigated, 6s, nonirrigated; Yuko soil—7s, nonirrigated
Range site: Fulstone soil—025X018N; Dacker soil—025X019N; Yuko soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N

1234—Fulstone-Igdell-McIvey association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Fulstone very cobbly silt loam, 2 to 8 percent slopes (35 percent)
• Igdell gravelly silt loam, 2 to 8 percent slopes (30 percent)
• McIvey very cobbly loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Aquic Argixerolls, clayey-skeletal, montmorillonitic, frigid, 2 to 8 percent slopes (4 percent)
• Inclusion 2: Chen very cobbly loam, 4 to 15 percent slopes (4 percent)
• Inclusion 3: Short Creek very cobbly loam, 15 to 30 percent slopes (4 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Fulstone Soil

Classification: Abruptic Xerollic Durargids, clayey, montmorillonitic, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Low sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 51 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 19 to 34 inches
Texture: Indurated hardpan
Consistence: Extremely hard, extremely firm

Depth: 34 to 57 inches
Texture: Extremely gravelly sandy clay
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.8 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium

Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Parent material: Loess cap over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 17 to 38 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 38 to 39 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 39 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.3 to 4.3 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,300 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 30
Percent pebbles on the surface: 25

Depth: 0 to 18 inches
Texture: Very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Very slow
Available water capacity: 5.1 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aquic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Tufted hairgrass, sedge
Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South- and west-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Tufted hairgrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Fulstone soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Igdell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Fulstone Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, shrink-swell potential
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Igdell Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Fair—low strength, large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—low strength, slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Fulstone, Igdell, and McIvey soils—7s, nonirrigated
Range site: Fulstone soil—025X018N; Igdell soil—025X017N; McIvey soil—025X012N; Inclusion 1—025X005N; Inclusion 2—025X017N; Inclusion 3—025X015N; Inclusion 4—025X005N

1270—Wieland-Dacker-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Wieland very gravelly loam, 15 to 30 percent slopes (45 percent)
- Dacker silt loam, 2 to 8 percent slopes (25 percent)
- Puett sandy loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Zevadez sandy loam, 4 to 15 percent slopes (4 percent)
- Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (3 percent)
- Inclusion 3: Gance very cobbly loam, 15 to 30 percent slopes (3 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive

Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Wyoming big sagebrush, black sagebrush, Indian ricegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Sandy loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Foot slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dacker Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Puett Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Wieland soil—6s, nonirrigated; Dacker soil—3e, irrigated, 6s, nonirrigated; Puett soil—7e, nonirrigated
Range site: Wieland soil—025X019N; Dacker soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

1271—Wieland-Enko association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland silt loam, 2 to 8 percent slopes (50 percent)
• Enko silt loam, 2 to 8 percent slopes (35 percent)
Contrasting inclusions:
• Inclusion 1: Bunky silt loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Zevadez silt loam, 8 to 15 percent slopes (4 percent)
• Inclusion 3: Chiara silt loam, 2 to 4 percent slopes (4 percent)
• Inclusion 4: Wieland silt loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Enko Soil

Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,200 to 5,800 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 4 to 18 inches
Texture: Loam
Structure: Prismatic
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 18 to 25 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 25 to 60 inches
Texture: Sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.6 to 8.8 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Haploxerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluegrass
Inclusion 3
Classification: Durixerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluegrass
Inclusion 4
Classification: Xerollic Durargids, fine, montmorillonitic, mixed, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Enko soil for named elements: Grain and seed crops (irrigated)—good; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Enko Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Good
Topsoil: Fair—small stones, thin layer
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Moderate—frost action
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope
Terraces and diversions: Erodes easily

Interpretive Groups

Capability classification: Wieland soil—3e, irrigated, 6s, nonirrigated; Enko soil—3e, irrigated, 6s, nonirrigated
Range site: Wieland soil—025X019N; Enko soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

1272—Wieland-Gance-Dacker association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland gravelly loam, 4 to 15 percent slopes (40 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (25 percent)
• Dacker silt loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Kelk silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Hunnton silt loam, 2 to 8 percent slopes (5 percent)
• Inclusion 3: Puett gravelly sandy loam, 15 to 30 percent slopes (5 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,700 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Dacker Soil

Classification: Xerollic Durargids, fine-loamy, mixed, mesic

Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 7 to 16 inches
Texture: Silty clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 16 to 25 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 25 to 31 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 4 to 8 mmhos per cm

Depth: 31 to 52 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.0 to 6.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush, Indian ricegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; wetland plants—fair
Suitability of the Dacker soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope

Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Gance Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Suitability and Limitations of the Dacker Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—cemented pan, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Wieland soil—6s, nonirrigated; Gance soil—7s, nonirrigated; Dacker soil—3e, irrigated, 6s, nonirrigated
Range site: Wieland soil—025X019N; Gance soil—025X019N; Dacker soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X025N

1273—Wieland-Bilbo-Tustell association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland gravelly loam, 4 to 15 percent slopes (45 percent)
• Bilbo gravelly loam, 15 to 50 percent slopes (20 percent)
• Tustell very gravelly loam, 8 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Camborthids, loamy-skeletal, mixed, mesic, 30 to 75 percent slopes (7 percent)
• Inclusion 2: Connel gravelly sandy loam, 0 to 4 percent slopes (4 percent)
• Inclusion 3: Bioya gravelly loam, 2 to 8 percent slopes (4 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,300 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex, south- and west-facing side slopes of partial ballenas
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 5,300 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 60

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.2 inches
Water-supplying capacity: 6.5 to 9.0 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—5; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—moderate
Potential for frost action: Low

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex side slopes of partial ballenas
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 8 to 15 percent
Elevation: 5,300 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam

Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.7 to 5.7 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Slightly concave, north- and east-facing side slopes of partial ballenas
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy over sandy or sandy-skeletal, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Tustell Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Wieland soil—6s, nonirrigated; Bilbo soil—7e, nonirrigated; Tustell soil—7s, nonirrigated
Range site: Wieland soil—025X019N; Bilbo soil—025X015N; Tustell soil—025X019N; Inclusion 1—

025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N

1274—Wieland-Tuffo-Chiara association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Wieland loam, 4 to 15 percent slopes (40 percent)
- Tuffo fine sandy loam, 30 to 50 percent slopes (30 percent)
- Chiara silt loam, 2 to 15 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Gochea gravelly loam, bedrock substratum, 15 to 30 percent slopes (5 percent)
- Inclusion 2: Soughe very gravelly loam, 15 to 50 percent slopes (5 percent)
- Inclusion 3: Hunnton loam, 2 to 15 percent slopes (3 percent)
- Inclusion 4: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow, 15 to 50 percent slopes (2 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tuffo Soil

Classification: Xeric Torriorthents, ashy, nonacid, mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 30 to 50 percent
Elevation: 5,100 to 5,800 feet
Dominant present vegetation: Douglas rabbitbrush, spiny hopsage, littleleaf horsebrush

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 3 inches
Texture: Fine sandy loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Mildly alkaline

Depth: 3 to 11 inches
Texture: Very fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 11 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.1 to 1.4 inches
Water-supplying capacity: 5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.24; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 15 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, cheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Slightly concave, north- and east-facing side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core

Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Tuffo soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Tuffo Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Slope, cemented pan, erodes easily

Interpretive Groups

Capability classification: Wieland soil—4e, irrigated, 6s, nonirrigated; Tuffo soil—7s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated
Range site: Wieland soil—025X019N; Tuffo soil—025X015N; Chiara soil—025X019N; Inclusion 1—025X014N; Inclusion 2—025X015N; Inclusion 3—025X019N; Inclusion 4—025X021N

1276—Wieland-Chiara-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland loam, 4 to 15 percent slopes (35 percent)
• Chiara silt loam, 2 to 8 percent slopes (30 percent)
• Puett gravelly sandy loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hunnton gravelly silt loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Zevadez loam, 8 to 30 percent slopes (5 percent)
• Inclusion 3: Xeric Torriorthents, loamy-skeletal, mixed, mesic, 8 to 30 percent slopes (4 percent)
• Inclusion 4: Kelk silt loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly concave summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,600 to 5,800 feet

Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, crested wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chiara Soil

Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,700 to 5,800 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, crested wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 4 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Neutral
Salinity: 0 to 2 mmhos per cm

Depth: 4 to 10 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 2 to 4 mmhos per cm

Depth: 10 to 14 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.7 to 2.0 inches
Water-supplying capacity: 5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.55; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow

Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 4 to 15 percent
Elevation: 5,600 to 5,800 feet
Dominant present vegetation: Wyoming big sagebrush, crested wheatgrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 20

Depth: 0 to 2 inches
Texture: Gravelly sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.8 to 2.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—4
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex, lower side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Xeric Torriorthents, loamy-skeletal, mixed, mesic
Position on landscape: Slightly convex, upper side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Chiara soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Chiara Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, frost action
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Wieland soil—4e, irrigated, 6s, nonirrigated; Chiara soil—4e, irrigated, 7s, nonirrigated; Puett soil—7s, nonirrigated
Range site: Wieland soil—025X019N; Chiara soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X019N

1277—Wieland-Hunnton-Tustell association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Wieland loam, 4 to 15 percent slopes (50 percent)
- Hunnton loam, 2 to 8 percent slopes (20 percent)
- Tustell gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Gance very gravelly loam, 30 to 50 percent slopes (5 percent)
- Inclusion 2: Bioya very fine sandy loam, 2 to 4 percent slopes (5 percent)
- Inclusion 3: Kelk silt loam, 0 to 2 percent slopes (4 percent)
- Inclusion 4: Alburz loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,400 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.4 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hunnton Soil

Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Smooth summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 6 to 14 inches
Texture: Clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 28 to 42 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Strongly alkaline

Depth: 42 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.4 to 5.0 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,400 to 6,000 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Xerollic Durorthids, fine-loamy, mixed, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 4
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Alpine timothy, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Hunnton soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Hunnton Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim

Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan, cutbanks cave
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, cemented pan
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source
Drainage: Deep to water
Irrigation: Percs slowly, cemented pan, slope
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Tustell Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Wieland soil—4e, irrigated, 6s, nonirrigated; Hunnton soil—4e, irrigated, 6s, nonirrigated; Tustell soil—7e, nonirrigated
Range site: Wieland soil—025X019N; Hunnton soil—025X019N; Tustell soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X019N; Inclusion 3—025X019N; Inclusion 4—025X006N

1278—Wieland-Kelk-Wieland, moderately steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland gravelly loam, 4 to 15 percent slopes (50 percent)
• Kelk silt loam, 2 to 8 percent slopes (20 percent)
• Wieland very gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Fluvaquentic Haploxerolls, coarse-loamy, mixed, mesic, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Gance very gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 3: Sonoma silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Slightly convex summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive
Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,200 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline

Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.7 to 9.2 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Fluvaquentic Haploxerolls, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Slightly convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Aeric Fluvaquents, fine-silty, mixed (calcareous), mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the moderately steep Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kelk Soil for Various Uses and Practices
Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Moderately Steep Wieland Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Wieland soils—6s, nonirrigated; Kelk soil—3e, irrigated, 6s, nonirrigated;
Range site: Both Wieland soils—025X019N; Kelk soil—025X019N; Inclusion 1—025X003N; Inclusion 2—

025X019N; Inclusion 3—025X003N; Inclusion 4—none

1279—Wieland-Kelk-Puett association

Map Unit Setting

Position on landscape: Fan piedmont remnants, inset fans

Composition

Major components:
- Wieland very gravelly loam, 4 to 15 percent slopes (50 percent)
- Kelk silt loam, 2 to 8 percent slopes (20 percent)
- Puett sandy loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Zevadez sandy loam, 4 to 15 percent slopes (5 percent)
- Inclusion 2: Enko sandy loam, 2 to 8 percent slopes (5 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.5 to 9.0 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kelk Soil

Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Parent material: Loess influenced by volcanic ash over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 5,500 to 5,900 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, cheatgrass

Climatic Data

Average annual precipitation: About 8 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 14 inches
Texture: Silt loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral
Salinity: 0 to 4 mmhos per cm

Depth: 14 to 51 inches
Texture: Silt loam
Structure: Massive

Consistence: Hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 51 to 60 inches
Texture: Silt loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Strongly alkaline
Salinity: 4 to 16 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Puett Soil

Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: Side slopes of fan piedmont remnants with a rock core
Parent material: Residuum derived from tuff or tuffaceous sandstone
Slope range: 15 to 50 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Wyoming big sagebrush, black sagebrush, antelope bitterbrush

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 5

Depth: 0 to 2 inches
Texture: Sandy loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 2 to 11 inches
Texture: Sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 11 to 15 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 10 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately rapid
Available water capacity: 1.9 to 2.3 inches
Water-supplying capacity: 6 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—3
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Lower, concave side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, coarse-loamy, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kelk soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor; wetland plants—very poor; shallow water areas—very poor
Suitability of the Puett soil for named elements: Wild

herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Wieland Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kelk Soil for Various Uses and Practices

Range seeding: Fair—too arid, excess salts
Roadfill: Poor—low strength
Topsoil: Good
Daily cover for landfill: Good
Shallow excavations: Slight
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Puett Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—seepage, piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Wieland soil—6s, nonirrigated; Kelk soil—3e, irrigated, 6s, nonirrigated; Puett soil—7e, nonirrigated
Range site: Wieland soil—025X019N; Kelk soil—025X019N; Puett soil—025X025N; Inclusion 1—025X019N; Inclusion 2—025X019N

1280—Wieland-Zevadez-Gance association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
- Wieland silt loam, 4 to 15 percent slopes (35 percent)
- Zevadez gravelly loam, 4 to 15 percent slopes (35 percent)
- Gance very gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Porrone very gravelly loam, 15 to 50 percent slopes (10 percent)
- Inclusion 2: Alburz very gravelly loam, 0 to 2 percent slopes (3 percent)
- Inclusion 3: Chiara silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline

Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Zevadez Soil

Classification: Durixerollic Haplargids, fine-loamy, mixed, mesic
Position on landscape: Slightly concave side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 16 inches
Texture: Sandy clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 16 to 33 inches
Texture: Fine sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 33 to 62 inches
Texture: Loamy sand
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.5 to 10 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,000 to 5,600 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Camborthids, loamy-skeletal, mixed, mesic
Position on landscape: Lower side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Flood plains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Zevadez soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—good; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Slope, erodes easily, percs slowly

Suitability and Limitations of the Zevadez Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones
Daily cover for landfill: Fair—too sandy, slope
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, rooting depth
Terraces and diversions: Slope, erodes easily, too sandy

Suitability and Limitations of the Gance Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—small stones
Gravel: Probable source

Interpretive Groups

Capability classification: Wieland soil—4e, irrigated, 6s, nonirrigated; Zevadez soil—4e, irrigated, 6c, nonirrigated; Gance soil—7s, nonirrigated
Range site: Wieland soil—025X019N; Zevadez soil—025X019N; Gance soil—025X019N; Inclusion 1—025X019N; Inclusion 2—025X003N; Inclusion 3—025X019N

1281—Wieland-Tustell-Tustell, moderately steep association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Wieland silt loam, 2 to 8 percent slopes (50 percent)
• Tustell gravelly loam, 8 to 15 percent slopes (20 percent)
• Tustell very gravelly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Gance very gravelly loam, 15 to 50 percent slopes (7 percent)
• Inclusion 2: Kelk silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Chiara silt loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Wieland Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 5,900 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 26 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 52 inches
Texture: Gravelly sandy clay loam
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 52 to 60 inches
Texture: Loam
Structure: Massive
Consistence: Very hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.0 to 9.5 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.55; T value—5; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash

Slope range: 8 to 15 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.8 to 5.9 inches
Water-supplying capacity: 8 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Moderately Steep Tustell Soil

Classification: Durixerollic Haplargids, fine, montmorillonitic, mesic
Position on landscape: Smooth side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,200 feet
Dominant present vegetation: Big sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 19 inches
Texture: Gravelly clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 19 to 30 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 30 to 60 inches
Texture: Stratified very gravelly loamy sand to gravelly loamy fine sand
Structure: Massive
Consistence: Slightly hard, firm
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 3.7 to 5.7 inches
Water-supplying capacity: 8 to 10 inches

Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Classification: Durixerollic Camborthids, fine-silty, mixed, mesic
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, black greasewood, basin wildrye
Inclusion 3
Classification: Xerollic Durorthids, loamy, mixed, mesic, shallow
Position on landscape: Slightly convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Wieland soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the moderately steep Tustell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Wieland Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—too clayey
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, slope, erodes easily
Terraces and diversions: Erodes easily, percs slowly

Suitability and Limitations of the Tustell Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Good
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Severe—cutbanks cave
Local roads and streets: Moderate—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Moderately Steep Tustell Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Interpretive Groups

Capability classification: Wieland soil—3e, irrigated, 6s, nonirrigated; both Tustell soils—7s, nonirrigated
Range site: Wieland soil—025X019N; both Tustell soils—025X019N; Inclusion 1—025X019N; Inclusion 2—024X006N; Inclusion 3—025X019N

1631—Hackwood-Hapgood-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Hackwood silt loam, 15 to 30 percent slopes (45 percent)

• Hapgood very gravelly loam, 15 to 30 percent slopes (25 percent)
• Cleavage extremely gravelly loam, 8 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Arcia gravelly loam, 4 to 15 percent slopes (10 percent)
• Inclusion 2: Rock outcrop (5 percent)

Characteristics of the Hackwood Soil

Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave, north- and east-facing side slopes of mountains
Parent material: Colluvium derived from chert or quartzite
Slope range: 15 to 30 percent
Elevation: 8,100 to 8,800 feet
Dominant present vegetation: Quaking aspen, mountain brome

Climatic Data

Average annual precipitation: About 18 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 20 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 20 to 30 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 30 to 60 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Slightly acid

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 6.6 to 10 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Lower, concave, north- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from chert or quartzite
Slope range: 15 to 30 percent
Elevation: 7,600 to 8,100 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue, mountain brome

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight

Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from chert or quartzite
Slope range: 8 to 15 percent
Elevation: 8,100 to 8,800 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Crests and smooth, north- and east-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, woodland, wildlife habitat
Suitability of the Hackwood soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Hackwood Soil for Woodland
Site index for common trees: Quaking aspen—44
Most important native understory plants: Mountain brome, Idaho fescue

Suitability and Limitations of the Hackwood Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Fair—slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Fair—depth to rock, thin layer, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Hackwood soil—6e, nonirrigated; Hapgood soil—7s, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Hackwood soil—025X065N; Hapgood soil—025X004N; Cleavage soil—025X024N; Inclusion 1—025X012N; Inclusion 2—none

1662—Susie Creek-Kleckner-Quarz association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Susie Creek gravelly loam, 4 to 15 percent slopes (40 percent)
• Kleckner gravelly loam, 4 to 15 percent slopes (30 percent)
• Quarz very gravelly loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Cotant very gravelly clay loam, 4 to 15 percent slopes (5 percent)
• Inclusion 2: Gance very gravelly loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 4: McIvey gravelly loam, 15 to 50 percent slopes (1 percent)

Characteristics of the Susie Creek Soil

Classification: Durargidic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 30 inches
Texture: Sandy clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 43 inches
Texture: Sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.7 to 8.2 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of hills
Parent material: Colluvium derived from rhyolite
Slope range: 4 to 15 percent

Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Big sagebrush, lanceleaf rabbitbrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.5 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Susie Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Susie Creek Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—depth to rock, thin layer
Topsoil: Poor—small stones
Daily cover for landfill: Poor—thin layer
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small slopes, slope
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, shrink-swell potential, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Susie Creek soil—6s, nonirrigated; Kleckner soil—6s, nonirrigated; Quarz soil—7s, nonirrigated
Range site: Susie Creek soil—025X014N; Kleckner soil—025X014N; Quarz soil—025X014N; Inclusion 1—025X017N; Inclusion 2—025X019N; Inclusion 3—025X003N; Inclusion 4—025X012N

1663—Susie Creek-Akler-Eboda association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Susie Creek gravelly loam, 4 to 15 percent slopes (40 percent)
• Akler loam, 4 to 15 percent slopes (30 percent)
• Eboda loam, 8 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Bilbo gravelly loam, 15 to 30 percent slopes (6 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (3 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the Susie Creek Soil

Classification: Durargidic Argixerolls, fine, montmorillonitic, frigid

Position on landscape: Smooth summits and side slopes of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 30 inches
Texture: Sandy clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 43 inches
Texture: Sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.7 to 8.2 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave side slopes of hills
Parent material: Loess over residuum derived from welded tuff

Slope range: 8 to 15 percent
Elevation: 6,000 to 6,400 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Adjacent to the entrenched part of stream channels in narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Susie Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Susie Creek Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Fair—depth to rock, thin layer
Topsoil: Poor—small stones
Daily cover for landfill: Poor—thin layer
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—droughty, too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope

Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Susie Creek soil—6s, nonirrigated; Akler soil—7s, nonirrigated; Eboda soil—6c, nonirrigated
Range site: Susie Creek soil—025X014N; Akler soil—025X018N; Eboda soil—025X027N; Inclusion 1—025X015N; Inclusion 2—025X003N; Inclusion 3—none; Inclusion 4—025X005N

1664—Susie Creek-Akler-Yuko association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Susie Creek gravelly loam, 4 to 15 percent slopes (40 percent)
• Akler loam, 8 to 15 percent slopes (25 percent)
• Yuko very gravelly loam, 30 to 50 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Grina gravelly loam, 15 to 30 percent slopes (6 percent)
• Inclusion 2: Linkup gravelly loam, 8 to 15 percent slopes (4 percent)
• Inclusion 3: Alburz loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Susie Creek Soil

Classification: Durargidic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Crests and smooth side slopes of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 30 inches
Texture: Sandy clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 43 inches
Texture: Sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.7 to 8.2 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Convex, north- and east-facing side slopes of hills
Parent material: Residuum derived from welded tuff

Slope range: 8 to 15 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Yuko Soil

Classification: Xerollic Haplargids, loamy, mixed, mesic, shallow
Position on landscape: Convex, south- and west-facing side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 5,700 to 6,100 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 47 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 50

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 2 to 6 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 6 to 8 inches
Texture: Clay
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 8 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 6 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 5.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed (calcareous), mesic, shallow
Position on landscape: West-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Utah juniper

Inclusion 2
Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid

Position on landscape: Convex, north- and east-facing side slopes of hills
Distinctive present vegetation: Low sagebrush, Sandberg bluegrass

Inclusion 3
Classification: Fluvaquentic Haplaquolls, sandy-skeletal, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Susie Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Yuko soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Susie Creek Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—depth to rock, thin layer
Topsoil: Poor—small stones
Daily cover for landfill: Poor—thin layer
Shallow excavations: Moderate—too clayey, slope
Local roads and streets: Moderate—slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Yuko Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Susie Creek soil—6s, nonirrigated; Akler soil—7s, nonirrigated; Yuko soil—7s, nonirrigated
Range site: Susie Creek soil—025X014N; Akler soil—025X018N; Yuko soil—025X015N; Inclusion 1—025X059N; Inclusion 2—025X018N; Inclusion 3—025X003N; Inclusion 4—025X003N

1721—Quarz-Quarz, sloping-Arcia association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Quarz very gravelly loam, 15 to 50 percent slopes (30 percent)
- Quarz very gravelly loam, 4 to 15 percent slopes (30 percent)
- Arcia gravelly loam, 15 to 30 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: McIvey very gravelly loam, 15 to 50 percent slopes (6 percent)
- Inclusion 2: Welch silt loam, 2 to 8 percent slopes (6 percent)
- Inclusion 3: Chen very gravelly loam, 4 to 15 percent slopes (2 percent)
- Inclusion 4: Gance very gravelly loam, 15 to 30 percent slopes (1 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,000 feet

Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Sloping Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,900 to 7,000 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,600 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 4
Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Lower, concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the sloping Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sloping Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Arcia Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Quarz soils—7s, nonirrigated; Arcia soil—6e, nonirrigated
Range site: Quarz soil—025X009N; the sloping Quarz soil—025X014N; Arcia soil—025X012N; Inclusion 1—025X012N; Inclusion 2—025X003N; Inclusion 3—025X017N; Inclusion 4—025X019N

1722—Quarz-Pernty, moderately steep-Pernty association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Quarz very gravelly loam, 15 to 50 percent slopes (30 percent)
• Pernty very gravelly loam, 15 to 30 percent slopes (30 percent)
• Pernty gravelly loam, 4 to 15 percent slopes, very stony (25 percent)
Contrasting inclusions:
• Inclusion 1: Cleavage very gravelly loam, 4 to 15 percent slopes (8 percent)
• Inclusion 2: Welch silt loam, 2 to 8 percent slopes (5 percent)
• Inclusion 3: Eboda gravelly loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,300 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Moderately Steep Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Smooth or convex, north-facing side slopes of mountains

Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,300 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 5.5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,300 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 30

Depth: 0 to 2 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.9 inches
Water-supplying capacity: 5.5 to 7.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains

Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the moderately steep Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Pernty Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernty Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil and both Pernty soils—7s, nonirrigated
Range site: Quarz soil—025X009N; both Pernty soils—025X012N; Inclusion 1—025X017N; Inclusion 2—025X003N; Inclusion 3—025X012N

1724—Quarz-McIvey-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Quarz very gravelly loam, 15 to 50 percent slopes (35 percent)
• McIvey gravelly loam, 30 to 50 percent slopes (25 percent)
• Cleavage very gravelly loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (8 percent)
• Inclusion 2: Heechee gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 3: Hapgood very gravelly loam, 30 to 50 percent slopes (2 percent)
• Inclusion 4: Welch silt loam, 4 to 8 percent slopes (2 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 to 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Colluvium derived from rhyolite
Slope range: 30 to 50 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,300 to 6,800 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F

Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave side slopes of mountains
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, snowberry, mountain brome

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Fair—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope

Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil—7s, nonirrigated; McIvey soil—7e, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Quarz soil—025X009N; McIvey soil—025X012N; Cleavage soil—025X017N; Inclusion 1—none; Inclusion 2—025X027N; Inclusion 3—025X004N; Inclusion 4—025X003N

1725—Quarz-Cleavage-Loncan association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Quarz cobbly loam, 15 to 50 percent slopes (35 percent)
• Cleavage extremely gravelly loam, 15 to 50 percent slopes (25 percent)
• Loncan very gravelly loam, 15 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: McIvey very gravelly loam, 15 to 50 percent slopes (5 percent)
• Inclusion 3: Crooked Creek silty clay loam, 0 to 4 percent slopes (3 percent)
• Inclusion 4: Shively loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, convex, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 7,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.2 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 7,500 to 8,000 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,600 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, north-facing, convex side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Inclusion 4
Classification: Pachic Haploxerolls, coarse-loamy, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Distinctive present vegetation: Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Fair—too arid, erodes easily, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil—7e, nonirrigated; Cleavage soil—7s, nonirrigated; Loncan soil—7s, nonirrigated
Range site: Quarz soil—025X009N; Cleavage soil—025X024N; Loncan soil—025X012N; Inclusion 1—none; Inclusion 2—025X012N; Inclusion 3—025X006N; Inclusion 4—025X010N

1727—Quarz-Susie Creek-Loncan association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Quarz very gravelly loam, 4 to 15 percent slopes (45 percent)
- Susie Creek gravelly loam, 15 to 50 percent slopes (25 percent)
- Loncan very gravelly loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Quarz very gravelly loam, 15 to 50 percent slopes (5 percent)
- Inclusion 2: Cotant very gravelly loam, 15 to 30 percent slopes (4 percent)
- Inclusion 3: Rock outcrop (3 percent)
- Inclusion 4: Welch silt loam, 2 to 8 percent slopes (3 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,300 to 7,000 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay

Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Susie Creek Soil

Classification: Durargidic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave, south-facing side slopes of hills
Parent material: Residuum derived from rhyolite and influenced by loess
Slope range: 15 to 50 percent
Elevation: 6,300 to 7,000 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 7 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 7 to 30 inches
Texture: Sandy clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 30 to 43 inches
Texture: Sandy loam
Structure: Massive
Consistence: Very hard, firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 43 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 6.7 to 8.2 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,300 to 7,000 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 7 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Susie Creek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Susie Creek Soil for Various Uses and Practices
Range seeding: Fair—too arid, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope, thin layer
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil—7s, nonirrigated; Susie Creek soil—7e, nonirrigated; Loncan soil—7s, nonirrigated
Range site: Quarz soil—025X014N; Susie Creek soil—025X014N; Loncan soil—025X012N; Inclusion 1—025X009N; Inclusion 2—025X017N; Inclusion 3—none; Inclusion 4—025X003N

1728—Quarz-Cleavage-Tusel association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Quarz very stony loam, 30 to 50 percent slopes (35 percent)
- Cleavage very cobbly loam, 30 to 50 percent slopes (30 percent)
- Tusel gravelly loam, 15 to 50 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Bullump cobbly loam, 8 to 15 percent slopes (6 percent)
- Inclusion 2: Pernog very bouldery loam, 30 to 50 percent slopes (4 percent)
- Inclusion 3: Rock outcrop (3 percent)
- Inclusion 4: Hackwood silt loam, 15 to 30 percent slopes (2 percent)

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south- and west-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff or quartzite
Slope range: 30 to 50 percent
Elevation: 6,400 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 15

Depth: 0 to 4 inches
Texture: Very stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 12 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 7,000 to 7,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 to 19 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,400 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.2 to 6.3 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south- and west-facing side slopes of mountains
Distinctive present vegetation: Mountain brome, basin wildrye

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, convex side slopes of mountains
Distinctive present vegetation: Curlleaf mountainmahogany

Inclusion 3
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 4
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Concave, north- and east-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices

Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones

Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—large stones, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices

Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil—7s, nonirrigated; Cleavage soil—7s, nonirrigated; Tusel soil—7e, nonirrigated
Range site: Quarz soil—025X009N; Cleavage soil—025X024N; Tusel soil—025X010N; Inclusion 1—025X016N; Inclusion 2—028B042N; Inclusion 3—none; Inclusion 4—025X065N

1729—Quarz-Tusel-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Quarz very stony loam, 30 to 50 percent slopes (35 percent)
• Tusel gravelly loam, 15 to 50 percent slopes (25 percent)
• Cleavage very cobbly loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (4 percent)
• Inclusion 2: Sumine very gravelly loam, 15 to 50 percent slopes (4 percent)
• Inclusion 3: Arcia gravelly loam, 15 to 30 percent slopes (4 percent)
• Inclusion 4: Hackwood gravelly loam, 30 to 50 percent slopes (3 percent

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, convex, south- and west-facing side slopes of mountains
Parent material: Residuum and colluvium derived from conglomerate
Slope range: 30 to 50 percent
Elevation: 6,400 to 7,400 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 15

Depth: 0 to 4 inches
Texture: Very stony loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 12 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Slow
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—3
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Tusel Soil

Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north- and east-facing side slopes of mountains
Parent material: Residuum and colluvium derived from conglomerate or quartzite
Slope range: 15 to 50 percent
Elevation: 6,400 to 8,300 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 17 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 19 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 19 to 45 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 45 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 4.2 to 6.3 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—3; wind erodibility group—5
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and upper, convex side slopes of mountains
Parent material: Residuum and colluvium derived from conglomerate
Slope range: 15 to 30 percent
Elevation: 7,400 to 8,300 feet
Dominant present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, south- and west-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower, concave side slopes of mountains
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue
Inclusion 4
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave side slopes of mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Tusel soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tusel Soil for Various Uses and Practices
Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Quarz soil—7s, nonirrigated; Tusel soil—7e, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Quarz soil—025X009N; Tusel soil—025X010N; Cleavage soil—025X024N; Inclusion 1—none; Inclusion 2—025X009N; Inclusion 3—025X012N; Inclusion 4—025X065N

1805—Bregar-Sumine-Hapgood association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bregar extremely gravelly loam, 15 to 50 percent slopes (45 percent)
• Sumine very gravelly loam, 15 to 50 percent slopes (25 percent)
• Hapgood very gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Lithic Argixerolls, loamy-skeletal,mixed, frigid (4 percent)
• Inclusion 3: Loncan gravelly loam, 15 to 50 percent slopes (2 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Convex crests and side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 80

Depth: 0 to 2 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, basin wildrye, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 55
Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.4 to 3.6 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Hapgood Soil

Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,800 feet

Dominant present vegetation: Mountain big sagebrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 70 days

Typical Profile

Depth: 0 to 8 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 8 to 31 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 31 to 42 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Slightly hard, very friable
Reaction: Slightly acid

Depth: 42 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.8 to 4.8 inches
Water-supplying capacity: 12 to 15 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.17; T value—3; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush

Inclusion 3
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Hapgood soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bregar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Hapgood Soil for Various Uses and Practices

Range seeding: Poor—small stones

Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bregar, Sumine, and Hapgood soils—7s, nonirrigated
Range site: Bregar soil—025X051N; Sumine soil—025X009N; Hapgood soil—025X004N; Inclusion 1—none; Inclusion 2—025X042N; Inclusion 3—025X012N; Inclusion 4—025X005N

1806—Bregar-Graley-Chen association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Bregar extremely gravelly loam, 2 to 8 percent slopes (45 percent)
• Graley very gravelly loam, 4 to 15 percent slopes, stony (30 percent)
• Chen very gravelly loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (9 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Convex crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 80

Depth: 0 to 1 inch
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 1 to 6 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth crests and side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,500 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1
Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable

Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 5.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave crests of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,500 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Summits and side slopes of hills
Distinctive present vegetation: None

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bregar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—too arid, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bregar, Graley, and Chen soils—7s, nonirrigated
Range site: Bregar soil—025X051N; Graley soil—025X012N; Chen soil—025X017N; Inclusion 1—none; Inclusion 2—025X005N

1807—Bregar-Bregar, eroded-McIvey association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Bregar extremely gravelly loam, 30 to 75 percent slopes (35 percent)
• Bregar very gravelly sandy loam, 30 to 75 percent slopes, eroded (35 percent)
• McIvey gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Pernty very gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Hapgood very gravelly loam, 30 to 50 percent slopes (2 percent)

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 6,600 to 7,700 feet
Dominant present vegetation: Big sagebrush, low sagebrush

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 80

Depth: 0 to 2 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Eroded Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 6,600 to 7,700 feet
Dominant present vegetation: Low sagebrush

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 3
Percent pebbles on the surface: 75

Depth: 0 to 1 inch
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 1 to 6 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,600 to 7,700 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rock outcrop on convex side slopes of mountains
Distinctive present vegetation: Serviceberry, Idaho fescue
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, alpine timothy
Inclusion 4
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Serviceberry, snowberry, mountain brome

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the eroded Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Bregar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eroded Bregar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Bregar soils—7s, nonirrigated; McIvey soil—7e, nonirrigated
Range site: Bregar soil—025X024N; the eroded Bregar soil—025X051N; McIvey soil—025X012N; Inclusion 1—none; Inclusion 2—025X046N; Inclusion 3—025X006N; Inclusion 4—025X004N

1808—Bregar-McIvey-Cotant association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Bregar extremely gravelly loam, 2 to 15 percent slopes (40 percent)
• McIvey very cobbly loam, 15 to 30 percent slopes (30 percent)
• Cotant very cobbly loam, 15 to 30 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (10 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes, frequently flooded (2 percent)

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid

Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 2 to 15 percent
Elevation: 6,100 to 6,800 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 80

Depth: 0 to 2 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch
Water-supplying capacity: 6.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of hills
Parent material: Colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,100 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 30
Percent pebbles on the surface: 25

Depth: 0 to 18 inches
Texture: Very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.1 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,100 to 6,800 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Adjacent to the entrenched part of stream channels in narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Bregar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Fair—low strength, large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Bregar, McIvey, and Cotant soils—7s, nonirrigated
Range site: Bregar soil—025X051N; McIvey soil—025X012N; Cotant soil—025X017N; Inclusion 1—none; Inclusion 2—025X003N; Inclusion 3—025X005N

1821—Cotant-McIvey-Quarz association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cotant very gravelly loam, 15 to 50 percent slopes (35 percent)
• McIvey gravelly loam, 15 to 50 percent slopes (35 percent)
• Quarz very gravelly loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Xeric Torriorthents, loamy, mixed, nonacid, frigid, shallow (7 percent)
• Inclusion 2: Tusel gravelly loam, 15 to 50 percent slopes (6 percent)
• Inclusion 3: Welch silt loam, 2 to 4 percent slopes, frequently flooded (1 percent)
• Inclusion 4: Welch silt loam, 2 to 4 percent slopes (1 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable

Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, basin wildrye, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam

Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed, nonacid, frigid, shallow
Position on landscape: Upper, convex, eroded side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Smooth, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass

Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Drainageways in the mountains
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant soil—7s, nonirrigated; McIvey soil—7e, nonirrigated; Quarz soil—7s, nonirrigated
Range site: Cotant soil—025X017N; McIvey soil—025X012N; Quarz soil—025X009N; Inclusion 1—025X051N; Inclusion 2—025X010N; Inclusion 3—025X005N; Inclusion 4—025X006N

1822—Cotant-Bregar-Donna association

Map Unit Setting

Position on landscape: Hills, fan piedmont remnants

Composition

Major components:
• Cotant gravelly clay loam, 4 to 15 percent slopes (40 percent)
• Bregar extremely cobbly loam, 2 to 15 percent slopes (30 percent)
• Donna gravelly loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 2 to 8 percent slopes (7 percent)
• Inclusion 2: Chen gravelly loam, 2 to 15 percent slopes (5 percent)
• Inclusion 3: Ninemile gravelly loam, 4 to 15 percent slopes (3 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Side slopes and slightly concave summits of hills
Parent material: Residuum derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,700 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy

Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.1 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits and side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 2 to 15 percent
Elevation: 6,300 to 6,700 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 30
Percent pebbles on the surface: 45

Depth: 0 to 2 inches
Texture: Extremely cobbly loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 8 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.1 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.02; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Donna Soil

Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,700 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 23 inches
Texture: Clay
Structure: Prismatic
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 23 to 33 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Depth: 33 to 60 inches
Texture: Stratified extremely gravelly sandy loam to gravelly sandy clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 36 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 3.6 to 4.1 inches
Water-supplying capacity: 7.5 to 9.0 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills and the adjacent inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth summits and side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Lithic Argixerolls, clayey, montmorillonitic, frigid
Position on landscape: Slightly concave summits and side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Donna soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bregar Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock, large stones
Local roads and streets: Severe—depth to rock, large stones
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Donna Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, frost action
Pond reservoir areas: Severe—seepage

Embankments, dikes, and levees: Moderate—cemented pan, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant, Bregar, and Donna soils—7s, nonirrigated
Range site: Cotant soil—025X017N; Bregar soil—025X022N; Donna soil—025X018N; Inclusion 1—025X003N; Inclusion 2—025X017N; Inclusion 3—025X017N

1823—Cotant-Kleckner-McIvey association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cotant very cobbly loam, 4 to 15 percent slopes (40 percent)
• Kleckner gravelly loam, 2 to 8 percent slopes (35 percent)
• McIvey cobbly loam, 8 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 0 to 2 percent slopes (4 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes, occasionally flooded (3 percent)
• Inclusion 3: McIvey gravelly loam, 15 to 30 percent slopes (3 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth summits and side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits and south-facing side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay

Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.5 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 18 inches
Texture: Cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.1 to 7.3 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Adjacent to the entrenched part of stream channels in narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Nevada bluegrass, alpine timothy
Inclusion 3
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild

herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small stones
Shallow excavations: Moderate—too clayey, large stones
Local roads and streets: Moderate—shrink-swell potential, large stones
Pond reservoir areas: Moderate—seepage, slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Fair—large stones
Roadfill: Fair—low strength, large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—low strength, slope, frost action
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups
Capability classification: Cotant soil—7s, nonirrigated; Kleckner soil—6s, nonirrigated; McIvey soil—6s, nonirrigated
Range site: Cotant soil—025X017N; Kleckner soil—025X014N; McIvey soil—025X012N; Inclusion 1—025X003N; Inclusion 2—025X006N; Inclusion 3—025X012N

1824—Cotant, moderately steep-Cotant-McIvey association

Map Unit Setting
Position on landscape: Hills

Composition
Major components:
• Cotant very cobbly loam, 15 to 30 percent slopes (35 percent)
• Cotant very cobbly loam, 4 to 15 percent slopes (30 percent)
• McIvey cobbly loam, 15 to 30 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Bregar very gravelly sandy loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (2 percent)
• Inclusion 3: Welch silt loam, 0 to 2 percent slopes (2 percent)
• Inclusion 4: Entic Cryumbrepts, loamy-skeletal, mixed, 15 to 30 percent slopes (1 percent)

Characteristics of the Moderately Steep Cotant Soil
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data
Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile
Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,600 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 18 inches
Texture: Cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.1 to 7.3 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.17; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex, eroded side slopes of hills
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass, sedge
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Nevada bluegrass, alpine timothy
Inclusion 4
Classification: Entic Cryumbrepts, loamy-skeletal, mixed
Position on landscape: North-facing side slopes of hills
Distinctive present vegetation: Letterman needlegrass, lupine

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the moderately steep Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Moderately Steep Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, shrink-swell potential, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Fair—large stones
Roadfill: Fair—low strength, large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cotant soils—7s, nonirrigated; McIvey soil—6c, nonirrigated
Range site: Both Cotant soils—025X017N; McIvey

soil—025X012N; Inclusion 1—025X051N; Inclusion 2—025X005N; Inclusion 3—025X006N; Inclusion 4—025X028N

1825—Cotant-Cotant, moderately steep-McIvey association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Cotant very gravelly clay loam, 4 to 15 percent slopes (50 percent)
- Cotant very gravelly loam, 15 to 30 percent slopes (20 percent)
- McIvey very gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Lithic Calcixerolls, loamy-skeletal, mixed, frigid, 8 to 30 percent slopes (8 percent)
- Inclusion 2: McIvey gravelly loam, 4 to 15 percent slopes (5 percent)
- Inclusion 3: Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (1 percent)
- Inclusion 4: Crooked Creek silty clay loam, 0 to 2 percent slopes (1 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Moderately Steep Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper, concave side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.05; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Calcixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and side slopes of hills associated with areas of limestone bedrock
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Typic Argixerolls, clayey-skeletal, mixed, frigid
Position on landscape: Lower, concave side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the moderately steep Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild

herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, shrink-swell potential, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cotant soils and the McIvey soil—7s, nonirrigated
Range site: Both Cotant soils—025X017N; McIvey soil—025X012N; Inclusion 1—025X051N; Inclusion 2—025X012N; Inclusion 3—025X005N; Inclusion 4—025X006N

1826—Cotant-Cotant, steep-Eboda association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Cotant very gravelly loam, 4 to 15 percent slopes (45 percent)
- Cotant very gravelly loam, 30 to 50 percent slopes (20 percent)
- Eboda loam, 4 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: McIvey gravelly loam, 2 to 15 percent slopes (5 percent)
- Inclusion 2: Welch silt loam, 0 to 2 percent slopes (5 percent)
- Inclusion 3: Rock outcrop (5 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and upper, convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,400 to 6,800 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches

Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Steep Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Mid or lower, convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,200 to 6,600 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave side slopes of hills
Parent material: Loess over residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,800 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches

Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave or smooth crests and side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the steep Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Eboda soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Steep Cotant Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, shrink-swell potential, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Eboda Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock, slope
Local roads and streets: Severe—low strength
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cotant soils—7s, nonirrigated; Eboda soil—6c, nonirrigated
Range site: Both Cotant soils—025X017N; Eboda soil—025X027N; Inclusion 1—025X012N; Inclusion 2—025X003N; Inclusion 3—none

1828—Cotant-Lerrow-Akler association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cotant very gravelly loam, 15 to 30 percent slopes (40 percent)
• Lerrow cobbly loam, 15 to 50 percent slopes (25 percent)
• Akler loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Welch silt loam, 0 to 4 percent slopes (5 percent)
• Inclusion 2: Cleavage extremely gravelly loam, 8 to 30 percent slopes (4 percent)
• Inclusion 3: Lerrow gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (3 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Concave, south-facing side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.1 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Akler Soil

Classification: Xerollic Haplargids, clayey, montmorillonitic, frigid, shallow

Position on landscape: Crests of hills
Parent material: Residuum derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Low sagebrush, alkali sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 6 to 17 inches
Texture: Clay
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 17 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.6 to 2.2 inches
Water-supplying capacity: 5.5 to 6.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Nevada bluegrass, alpine timothy

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rock outcrop on crests of hills
Distinctive present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Inclusion 3
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower, south-facing, concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Akler soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices

Range seeding: Fair—large stones, erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Akler Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant, Lerrow, and Akler soils—7s, nonirrigated
Range site: Cotant soil—025X017N; Lerrow soil—025X009N; Akler soil—025X018N; Inclusion 1—025X006N; Inclusion 2—025X024N; Inclusion 3—025X027N; Inclusion 4—none

1829—Cotant-McIvey-Rock outcrop association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Cotant very cobbly clay loam, 15 to 30 percent slopes (40 percent)
- McIvey gravelly silt loam, 15 to 50 percent slopes (30 percent)
- Rock outcrop (15 percent)

Contrasting inclusions:
- Inclusion 1: Quarz gravelly silt loam, 15 to 50 percent slopes (8 percent)
- Inclusion 2: Shively loam, 30 to 75 percent slopes (6 percent)
- Inclusion 3: Bregar gravelly coarse sandy clay, 4 to 15 percent slopes (1 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of hills
Parent material: Residuum derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave, north-facing side slopes of hills
Parent material: Colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches

Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of hills
Dominant present vegetation: None

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth or slightly concave, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Pachic Haploxerolls, coarse-loamy, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of hills
Distinctive present vegetation: Snowberry, serviceberry, Idaho fescue

Inclusion 3
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rock outcrop on crests and side slopes of hills
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Fair—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant soil—7s, nonirrigated; McIvey soil—7e, nonirrigated; Rock outcrop—8s, nonirrigated
Range site: Cotant soil—025X017N; McIvey soil—025X012N; Rock outcrop—none; Inclusion 1—025X009N; Inclusion 2—025X010N; Inclusion 3—025X051N

1830—Cotant-McIvey-Shively association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cotant very cobbly clay loam, 15 to 30 percent slopes (40 percent)
• McIvey gravelly loam, 15 to 30 percent slopes (30 percent)
• Shively loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Quarz gravelly silt loam, 15 to 50 percent slopes (8 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Hackwood gravelly loam, 15 to 50 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum derived from rhyolite or welded tuff
Slope range: 15 to 30 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly clay loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable

Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Shively Soil

Classification: Pachic Haploxerolls, coarse-loamy, mixed, frigid
Position on landscape: Smooth, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff or sandstone
Slope range: 30 to 50 percent
Elevation: 6,500 to 8,000 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 16 inches
Texture: Loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 16 to 31 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 31 to 46 inches
Texture: Fine sandy loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 46 to 56 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 5.6 to 8.1 inches
Water-supplying capacity: 14 to 18 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—3; wind erodibility group—5
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush

Inclusion 3
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen

Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Shively soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—large stones, rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, slope, shrink-swell potential
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Shively Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant soil—7s, nonirrigated; McIvey soil—6e, nonirrigated; Shively soil—7e, nonirrigated
Range site: Cotant soil—025X017N; McIvey soil—025X012N; Shively soil—025X010N; Inclusion 1—025X009N; Inclusion 2—025X003N; Inclusion 3—025X065N; Inclusion 4—none

1831—Cotant-McIvey-Welch association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Cotant very cobbly clay loam, 15 to 30 percent slopes (40 percent)
• McIvey gravelly loam, 4 to 15 percent slopes (30 percent)
• Welch silt loam, 0 to 2 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Eboda gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Rock outcrop (5 percent)
• Inclusion 3: Quarz gravelly silt loam, 15 to 50 percent slopes (5 percent)

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly clay loam

Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 3.0 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave, north-facing side slopes of mountains
Parent material: Colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Welch Soil

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Parent material: Mixed alluvium influenced by volcanic ash
Slope range: 0 to 2 percent
Elevation: 6,200 to 7,500 feet
Dominant present vegetation: Basin big sagebrush, Douglas rabbitbrush, western wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Silt loam
Structure: Platy

Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 9 to 61 inches
Texture: Stratified sandy loam to silty clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: 48 to 72 inches
Flooding: Frequency—rare
Permeability: Moderately slow
Available water capacity: 9.6 to 12 inches
Water-supplying capacity: 10 to 14 inches
Runoff: Very slow
Hydrologic group: C
Erosion factors (surface layer): K value—.32; T value—5; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: High

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue
Inclusion 2
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 3
Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Welch soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cotant Soil for Various Uses and Practices
Range seeding: Poor—large stones, rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, frost action, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Welch Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Poor—low strength
Topsoil: Fair—small stones
Daily cover for landfill: Fair—too clayey
Shallow excavations: Moderate—wetness
Local roads and streets: Severe—low strength, frost action
Pond reservoir areas: Slight
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cotant soil—7s, nonirrigated; McIvey soil—6c, nonirrigated; Welch soil—6w, nonirrigated
Range site: Cotant soil—025X017N; McIvey soil—025X012N; Welch soil—025X003N; Inclusion 1—025X027N; Inclusion 2—none; Inclusion 3—025X009N

1875—Chen-Ebic-Blackleg association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Chen gravelly silt loam, 2 to 8 percent slopes, very stony (35 percent)
• Ebic gravelly loam, 15 to 50 percent slopes, extremely stony (30 percent)
• Blackleg gravelly loam, 8 to 15 percent slopes, very stony (20 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Calciorthids, loamy-skeletal, mixed, frigid, 4 to 30 percent slopes (10 percent)
• Inclusion 2: Cleavage gravelly loam, 2 to 8 percent slopes, very stony (5 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Summits and upper side slopes of plateaus
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,400 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3
Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches

Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Blackleg Soil

Classification: Typic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave areas on the side slopes of plateaus
Parent material: Alluvium and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 27 to 40 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.9 to 3.5 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Calciorthids, loamy-skeletal, mixed, frigid
Position on landscape: Summits and side slopes of plateaus
Distinctive present vegetation: Black sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Summits and shoulders of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Blackleg soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Ebic Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, droughty
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Blackleg Soil for Various Uses and Practices

Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, shrink-swell potential, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Ebic, and Blackleg soils—7s, nonirrigated
Range site: Chen soil—025X017N; Ebic soil—025X017N; Blackleg soil—025X027N; Inclusion 1—024X031N; Inclusion 2—025X017N

1876—Chen-Ebic association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Chen gravelly silt loam, 2 to 8 percent slopes, very stony (45 percent)
• Ebic gravelly loam, 2 to 15 percent slopes, extremely stony (40 percent)
Contrasting inclusions:
• Inclusion 1: Cleavage gravelly loam, 2 to 8 percent slopes, very stony (10 percent)
• Inclusion 2: Igdell silt loam, 2 to 8 percent slopes, very stony (4 percent)
• Inclusion 3: Typic Palexerolls, fine, montmorillonitic, frigid, 8 to 15 percent slopes (1 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Summits and upper, convex side slopes of plateaus
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,500 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3
Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Structure: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 15 percent
Elevation: 6,300 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Summits and shoulders of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Convex side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Typic Palexerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth side slopes of plateaus
Distinctive present vegetation: Antelope bitterbrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Ebic Soil for Various Uses and Practices
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen and Ebic soils—7s, nonirrigated
Range site: Chen soil—025X017N; Ebic soil—025X017N; Inclusion 1—025X017N; Inclusion 2—025X017N; Inclusion 3—025X007N

1877—Chen-Bregar-Loncan association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Chen very cobbly loam, 15 to 30 percent slopes (45 percent)
- Bregar very gravelly coarse sandy loam, 4 to 15 percent slopes, eroded (25 percent)
- Loncan very gravelly loam, 15 to 30 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Rock outcrop (9 percent)
- Inclusion 2: Welsum loam, 0 to 2 percent slopes (3 percent)
- Inclusion 3: Cleavage cobbly loam, 8 to 15 percent slopes (3 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,100 feet
Dominant present vegetation: Low sagebrush, Thurber needlegrass, cheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.8 to 1.0 inch
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Bregar Soil

Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 7,100 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 3
Percent pebbles on the surface: 75

Depth: 0 to 1 inch
Texture: Very gravelly coarse sandy loam
Structure: Massive
Consistence: Soft, very friable
Reaction: Neutral

Depth: 1 to 6 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 5 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.5 to 0.8 inch

Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Loncan Soil

Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, snowberry, bluebunch wheatgrass, basin wildrye

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 14 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 14 to 31 inches
Texture: Extremely cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 31 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 21 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 1.6 to 3.1 inches
Water-supplying capacity: 6.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Distinctive present vegetation: Low sagebrush, black sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bregar soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Loncan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bregar Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Loncan Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Bregar, and Loncan soils—7s, nonirrigated
Range site: Chen soil—025X017N; Bregar soil—025X051N; Loncan soil—025X012N; Inclusion 1—none; Inclusion 2—025X005N; Inclusion 3—025X024N

1879—Chen-Cotant-Arcia association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Chen cobbly loam, 15 to 30 percent slopes (40 percent)
• Cotant very cobbly loam, 15 to 30 percent slopes (25 percent)
• Arcia gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Lerrow gravelly clay loam, 15 to 30 percent slopes (7 percent)
• Inclusion 2: Susie Creek loam, 4 to 15 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 2 to 4 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F

Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 30
Percent pebbles on the surface: 20

Depth: 0 to 3 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 31 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 2.9 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Concave, north-facing side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 5,500 to 6,500 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Upper, concave, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Durargidic Argixerolls, fine, montmorillonitic, frigid

Position on landscape: Lower, slightly concave, south-facing side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 3

Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 4

Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, large stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Arcia Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen soil—7e, nonirrigated; Cotant soil—7s, nonirrigated; Arcia soil—6e, nonirrigated
Range site: Chen soil—025X017N; Cotant soil—025X017N; Arcia soil—025X012N; Inclusion 1—025X027N; Inclusion 2—025X014N; Inclusion 3—025X003N; Inclusion 4—none

1880—Chen-Arcia-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Chen very cobbly loam, 15 to 30 percent slopes (40 percent)
• Arcia gravelly loam, 30 to 50 percent slopes (25 percent)
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Lerrow gravelly loam, 15 to 30 percent slopes (5 percent)
• Inclusion 2: Eboda loam, 30 to 50 percent slopes (5 percent)
• Inclusion 3: Cumulic Cryaquolls, fine-loamy, mixed, 2 to 4 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of mountains
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 15 to 30 percent

Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Low sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.8 to 1.0 inch
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Upper, concave, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent

Elevation: 6,000 to 7,000 feet
Dominant present vegetation: Low sagebrush, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower, concave, north-facing side slopes of mountains
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 2
Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Cumulic Cryaquolls, fine-loamy, mixed
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Quaking aspen

Inclusion 4
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Arcia Soil for Various Uses and Practices
Range seeding: Poor—erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty

Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen soil—7s, nonirrigated; Arcia soil—7e, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Chen soil—025X017N; Arcia soil—025X012N; Cleavage soil—025X024N; Inclusion 1—025X027N; Inclusion 2—025X012N; Inclusion 3—025X064N; Inclusion 4—none

1881—Chen, moderately steep-Chen-Lerrow association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Chen cobbly loam, 15 to 30 percent slopes (30 percent)
• Chen cobbly loam, 4 to 8 percent slopes (30 percent)
• Lerrow cobbly loam, 30 to 50 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Crooked Creek silty clay loam, 0 to 2 percent slopes (6 percent)
• Inclusion 2: Cotant cobbly loam, 8 to 15 percent slopes (4 percent)
• Inclusion 3: Hapgood very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Moderately Steep Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Low sagebrush, low rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests of hills
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 4 to 8 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Low sagebrush, low rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Parent material: Residuum derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 5,800 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, rabbitbrush, basin wildrye

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.1 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 2
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Slightly concave side slopes of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 3
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Upper, concave side slopes of hills

Distinctive present vegetation: Snowberry, mountain brome

Inclusion 4

Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the moderately steep Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Moderately Steep Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices

Range seeding: Fair—large stones, erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: The moderately steep Chen soil—7e, nonirrigated; Chen soil—7s, nonirrigated; Lerrow soil—7s, nonirrigated
Range site: Both Chen soils—025X017N; Lerrow soil—025X009N; Inclusion 1—025X003N; Inclusion 2—025X017N; Inclusion 3—025X004N; Inclusion 4—none

1882—Chen-Lerrow-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Chen very cobbly loam, 4 to 30 percent slopes (40 percent)
• Lerrow cobbly loam, 15 to 50 percent slopes (30 percent)
• Cleavage very gravelly loam, 30 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (7 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (3 percent)
• Inclusion 3: Hackwood silt loam, 15 to 30 percent slopes (3 percent)
• Inclusion 4: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and upper, concave side slopes of mountains
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 4 to 30 percent
Elevation: 6,500 to 7,300 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15

Depth: 0 to 5 inches
Texture: Very cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.8 to 1.0 inch
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave, south-facing side slopes of mountains
Parent material: Residuum derived from welded tuff
Slope range: 15 to 50 percent
Elevation: 6,500 to 7,300 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 10
Percent pebbles on the surface: 20

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.1 inches
Water-supplying capacity: 9 to 10.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, convex side slopes of mountains
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 50 percent
Elevation: 6,500 to 7,300 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Crests and side slopes of mountains
Distinctive present vegetation: None
Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass
Inclusion 3
Classification: Pachic Cryoborolls, fine-loamy, mixed
Position on landscape: Upper, concave, north-facing side slopes of mountains
Distinctive present vegetation: Quaking aspen
Inclusion 4
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices
Range seeding: Fair—large stones, erodes easily
Roadfill: Poor—depth to rock, low strength, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—area reclaim, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Lerrow, and Cleavage soils—7s, nonirrigated
Range site: Chen soil—025X017N; Lerrow soil—025X009N; Cleavage soil—025X017N; Inclusion 1—none; Inclusion 2—025X005N; Inclusion 3—025X065N; Inclusion 4—025X064N

1883—Chen-Lerrow-Cotant association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Chen gravelly loam, 4 to 15 percent slopes (45 percent)
• Lerrow gravelly loam, 4 to 15 percent slopes (25 percent)
• Cotant very gravelly loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Soughe very gravelly loam, 15 to 50 percent slopes (7 percent)
• Inclusion 2: Chen very cobbly loam, 8 to 30 percent slopes (5 percent)
• Inclusion 3: Crooked Creek silty clay loam, 0 to 2 percent slopes (3 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests of mountains
Parent material: Residuum derived from tuff and influenced by loess or volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,100 to 7,200 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Lerrow Soil

Classification: Aridic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of mountains
Parent material: Residuum derived from welded tuff or rhyolite
Slope range: 4 to 15 percent
Elevation: 6,100 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 1
Percent cobbles on the surface: 5
Percent pebbles on the surface: 30

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 to 32 inches
Texture: Cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 32 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Cotant Soil

Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Smooth side slopes of mountains
Parent material: Residuum derived from welded tuff or rhyolite
Slope range: 2 to 8 percent
Elevation: 6,100 to 7,200 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 3 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 3 to 19 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, very firm
Reaction: Mildly alkaline

Depth: 19 to 23 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.6 to 3.0 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, mesic
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of mountains
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Lerrow soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Cotant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Lerrow Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Moderate—depth to rock, too clayey, slope
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cotant Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen soil—7s, nonirrigated; Lerrow soil—6s, nonirrigated; Cotant soil—7s, nonirrigated
Range site: Chen soil—025X017N; Lerrow soil—025X027N; Cotant soil—025X017N; Inclusion 1—025X015N; Inclusion 2—025X017N; Inclusion 3—025X003N

1884—Chen-Graley-Cleavage association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Chen very gravelly loam, 15 to 50 percent slopes (45 percent)
• Graley very gravelly loam, 15 to 50 percent slopes (25 percent)
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Sumine very gravelly loam, 15 to 50 percent slopes (7 percent)
• Inclusion 2: Hapgood very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 3: Pernty very gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 4: Welch silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, south-facing and slightly convex, north-facing side slopes of mountains
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,100 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable

Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex, north-facing side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,200 to 7,100 feet
Dominant present vegetation: Mountain big sagebrush, snowberry

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,200 to 7,100 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Nevada bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches

Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome
Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Graley, and Cleavage soils—7s, nonirrigated
Range site: Chen soil—025X017N; Graley soil—025X012N; Cleavage soil—025X024N; Inclusion 1—025X009N; Inclusion 2—025X004N; Inclusion 3—025X012N; Inclusion 4—025X003N

1885—Chen-Quarz-Linkup association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Chen very gravelly loam, 15 to 30 percent slopes (40 percent)

• Quarz very gravelly loam, 4 to 15 percent slopes (25 percent)
• Linkup gravelly clay loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid, 4 to 15 percent slopes (6 percent)
• Inclusion 2: Rubble land (5 percent)
• Inclusion 3: Lithic Xeric Torriorthents, loamy-skeletal, mixed, frigid, 15 to 50 percent slopes (2 percent)
• Inclusion 4: Bregar very gravelly loam, 15 to 50 percent slopes (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper, convex side slopes of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and upper, slightly concave side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,700 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8

Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Linkup Soil

Classification: Lithic Xerollic Haplargids, clayey, montmorillonitic, frigid
Position on landscape: Lower, convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,300 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bottlebrush squirreltail

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 25

Depth: 0 to 3 inches
Texture: Gravelly clay loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 8 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 16 inches
Texture: Gravelly clay
Structure: Subangular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 16 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 2.7 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower, slightly concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 2
Position on landscape: Side slopes of hills
Distinctive present vegetation: None
Inclusion 3
Classification: Lithic Xeric Torriorthents, loamy-skeletal, mixed, frigid
Position on landscape: Side slopes of hills
Distinctive present vegetation: Wyoming big sagebrush, black sagebrush, Indian ricegrass
Inclusion 4
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Convex, eroded side slopes of hills
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Linkup soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Linkup Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, hard to pack, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock, low strength
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Quarz, and Linkup soils—7s, nonirrigated
Range site: Chen soil—025X017N; Quarz soil—025X014N; Linkup soil—025X018N; Inclusion 1—025X019N; Inclusion 2—none; Inclusion 3—025X025N; Inclusion 4—025X018N

1886—Chen-Cleavage-Quarz association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Chen very gravelly loam, 15 to 30 percent slopes (45 percent)
• Cleavage extremely gravelly loam, 4 to 15 percent slopes (25 percent)
• Quarz very gravelly loam, 4 to 15 percent slopes (15 percent)

Contrasting inclusions:
• Inclusion 1: Quarz very gravelly loam, 15 to 50 percent slopes (6 percent)
• Inclusion 2: Aridic Haploxerolls, loamy-skeletal, mixed, frigid, 8 to 30 percent slopes (5 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes (4 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 5,900 to 6,500 feet
Dominant present vegetation: Low sagebrush, Douglas rabbitbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,500 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Extremely gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.5 to 1.8 inches
Water-supplying capacity: 8.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.05; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 5,900 to 6,500 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.1 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth, south-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Aridic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Cleavage, and Quarz soils—7s, nonirrigated
Range site: Chen soil—025X017N; Cleavage soil—025X024N; Quarz soil—025X014N; Inclusion 1—025X009N; Inclusion 2—025X014N; Inclusion 3—025X003N

1887—Chen-Graley association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Chen very gravelly loam, 2 to 8 percent slopes (50 percent)
• Graley very gravelly loam, 2 to 8 percent slopes (40 percent)
Contrasting inclusions:
• Inclusion 1: Cotant gravelly clay loam, 2 to 8 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, 0 to 2 percent slopes (5 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth summits of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,100 to 6,300 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass

Climatic Data
Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F

Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 2 to 8 percent
Elevation: 6,100 to 6,300 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Summits of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices

Range seeding: Poor—small stones, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen and Graley soils—7s, nonirrigated
Range site: Chen soil—025X017N; Graley soil—025X012N; Inclusion 1—025X017N; Inclusion 2—025X005N

1888—Chen-Graley-Quarz association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Chen very gravelly loam, 4 to 15 percent slopes (40 percent)
- Graley very gravelly loam, 4 to 15 percent slopes (30 percent)
- Quarz very cobbly loam, 15 to 50 percent slopes (15 percent)

Contrasting inclusions:
- Inclusion 1: Arcia gravelly loam, 15 to 50 percent slopes (5 percent)
- Inclusion 2: Bregar very gravelly loam, 8 to 15 percent slopes (5 percent)
- Inclusion 3: Crooked Creek silt loam, 0 to 2 percent slopes (3 percent)
- Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and side slopes of hills
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Low sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 35

Depth: 0 to 5 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 0.9 inch to 1.5 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, snowberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Quarz Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: South- and west-facing side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,500 to 6,800 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 15
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very cobbly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 12 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 26 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.0 to 3.4 inches
Water-supplying capacity: 7.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.10; T value—2; wind erodibility group—3
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: North- and east-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Eroded side slopes of hills
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass
Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Quarz soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Quarz Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen, Graley, and Quarz soils—7s, nonirrigated
Range site: Chen soil—025X017N; Graley soil—025X012N; Quarz soil—025X009N; Inclusion 1—025X012N; Inclusion 2—025X051N; Inclusion 3—025X005N; Inclusion 4—none

1889—Chen-McIvey-Arcia association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
- Chen cobbly loam, 8 to 30 percent slopes (30 percent)
- McIvey gravelly loam, 15 to 50 percent slopes (30 percent)
- Arcia gravelly loam, 15 to 30 percent slopes (25 percent)

Contrasting inclusions:
- Inclusion 1: Tusel gravelly loam, 15 to 50 percent slopes (7 percent)
- Inclusion 2: Rock outcrop (3 percent)
- Inclusion 3: Sumine gravelly loam, 15 to 50 percent slopes (3 percent)
- Inclusion 4: Welch silt loam, 0 to 2 percent slopes (2 percent)

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid

Position on landscape: Convex side slopes and crests of mountains
Parent material: Residuum derived from rhyolite and influenced by loess and volcanic ash
Slope range: 8 to 30 percent
Elevation: 6,800 to 7,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 10

Depth: 0 to 5 inches
Texture: Cobbly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.7 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Smooth side slopes of mountains
Parent material: Colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,800 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 2
Percent cobbles on the surface: 2
Percent pebbles on the surface: 20

Depth: 0 to 12 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 12 to 24 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 24 to 42 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 42 to 60 inches
Texture: Extremely cobbly clay loam
Structure: Massive
Consistence: Slightly hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.6 to 7.8 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Arcia Soil

Classification: Pachic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,800 to 7,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 85 days

Typical Profile

Depth: 0 to 14 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 14 to 21 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 21 to 34 inches
Texture: Clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 34 to 39 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 39 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 30 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.2 to 5.9 inches
Water-supplying capacity: 7.5 to 12 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Argic Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Upper, slightly convex, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, serviceberry, Idaho fescue
Inclusion 2
Position on landscape: Side slopes of mountains
Distinctive present vegetation: None
Inclusion 3
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 4
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Adjacent to the entrenched part of stream channels in narrow drainageways in the mountains
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good
Suitability of the Arcia soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope

Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—too clayey, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Arcia Soil for Various Uses and Practices

Range seeding: Good
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, hard to pack
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—low strength, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, hard to pack, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Chen soil—7e, nonirrigated; McIvey soil—7e, nonirrigated; Arcia soil—6e, nonirrigated
Range site: Chen soil—025X017N; McIvey soil—025X012N; Arcia soil—025X012N; Inclusion 1—025X010N; Inclusion 2—none; Inclusion 3—025X009N; Inclusion 4—025X003N

1935—Tweener-Tweener, moderately steep-Graley association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Tweener very gravelly loam, 4 to 15 percent slopes (35 percent)
- Tweener very gravelly loam, 15 to 30 percent slopes (35 percent)
- Graley very gravelly loam, 15 to 30 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Hapgood very gravelly loam, 15 to 50 percent slopes (4 percent)
- Inclusion 2: Cleavage extremely gravelly loam, 4 to 15 percent slopes (4 percent)
- Inclusion 3: Welch silt loam, 2 to 8 percent slopes (1 percent)
- Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches

Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Graley Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,100 to 6,900 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, snowberry

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 7 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 7 to 17 inches
Texture: Very gravelly clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.3 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight

Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Upper, concave, north-facing side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, snowberry, mountain brome
Inclusion 2
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Distinctive present vegetation: Low sagebrush
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the moderately steep Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Graley soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Graley Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, area reclaim
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Tweener soils and the Graley soil—7s, nonirrigated
Range site: Both Tweener soils—025X007N; Graley soil—025X012N; Inclusion 1—025X004N; Inclusion 2—025X024N; Inclusion 3—025X003N; Inclusion 4—none

1936—Tweener-Tweener, moderately steep-McIvey association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Tweener very gravelly loam, 2 to 8 percent slopes (50 percent)
• Tweener very gravelly loam, 15 to 30 percent slopes (20 percent)
• McIvey very gravelly loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Graley very gravelly loam, 4 to 15 percent slopes (7 percent)
• Inclusion 2: Chen very gravelly loam, 2 to 8 percent slopes (5 percent)
• Inclusion 3: Crooked Creek silty clay loam, 2 to 8 percent slopes (2 percent)
• Inclusion 4: Rock outcrop (1 percent)

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Moderately Steep Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Antelope bitterbrush, mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the McIvey Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave foot slopes of hills
Parent material: Colluvium derived from rhyolite
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,600 feet

Dominant present vegetation: Mountain big sagebrush, basin wildrye, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 18 inches
Texture: Very gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 18 to 23 inches
Texture: Very gravelly clay loam
Structure: Prismatic
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 23 to 62 inches
Texture: Extremely cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 5.0 to 7.3 inches
Water-supplying capacity: 9 to 14 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.05; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits and shoulders of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Tufted hairgrass

Inclusion 4
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the moderately steep Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the McIvey soil for named elements: Wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good

Suitability and Limitations of the Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Moderately Steep Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the McIvey Soil for Various Uses and Practices
Range seeding: Poor—small stones

Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—too clayey, small stones
Shallow excavations: Moderate—too clayey, large stones
Local roads and streets: Moderate—frost action, shrink-swell potential
Pond reservoir areas: Moderate—slope
Embankments, dikes, and levees: Moderate—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Tweener soils and the McIvey soil—7s, nonirrigated
Range site: Both Tweener soils—025X007N; McIvey soil—025X012N; Inclusion 1—025X012N; Inclusion 2—025X017N; Inclusion 3—025X005N; Inclusion 4—none

2010—Rock outcrop-Pernty-Pernog association

Map Unit Setting

Position on landscape: Mountains

Composition

Major components:
• Rock outcrop (45 percent)
• Pernty very gravelly loam, 15 to 50 percent slopes (25 percent)
• Pernog very stony loam, 15 to 50 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Bregar extremely gravelly loam, 15 to 50 percent slopes (9 percent)
• Inclusion 2: Sumine very gravelly loam, 30 to 50 percent slopes (3 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes (2 percent)
• Inclusion 4: Hapgood very gravelly loam, 15 to 50 percent slopes (1 percent)

Characteristics of the Rock Outcrop

Position on landscape: Crests and side slopes of mountains
Elevation: 6,700 to 7,200 feet
Distinctive present vegetation: None

Characteristics of the Pernty Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 15 to 50 percent
Elevation: 6,700 to 7,200 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 2 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 2 to 18 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 18 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Pernog Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and convex side slopes of mountains
Parent material: Residuum and colluvium derived from rhyolite

Slope range: 15 to 50 percent
Elevation: 6,700 to 7,200 feet
Dominant present vegetation: Curlleaf mountainmahogany

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 70 days

Typical Profile

Percent stones and boulders on the surface: 1

Depth: 0 to 10 inches
Texture: Very stony loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 17 inches
Texture: Very stony clay loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 17 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.8 inches
Water-supplying capacity: 8.5 to 11 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Xerollic Haplargids, loamy-skeletal, mixed, frigid
Position on landscape: Crests adjacent to areas of rock outcrop and convex, eroded side slopes of mountains
Distinctive present vegetation: Low sagebrush, bluebunch wheatgrass

Inclusion 2
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave, south-facing side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways in the mountains
Distinctive present vegetation: Tufted hairgrass

Inclusion 4
Classification: Pachic Cryoborolls, loamy-skeletal, mixed
Position on landscape: Concave, north-facing side slopes of mountains
Distinctive present vegetation: Snowberry, mountain brome

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Pernty soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Pernog soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Pernty Soil for Various Uses and Practices

Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Pernog Soil for Various Uses and Practices

Range seeding: Poor—droughty, large stones
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Rock outcrop—8s, nonirrigated; Pernty soil—7s, nonirrigated; Pernog soil—7s, nonirrigated
Range site: Rock outcrop—none; Pernty soil—025X012N; Pernog soil—028B042N; Inclusion 1—025X051N; Inclusion 2—025X009N; Inclusion 3—025X005N; Inclusion 4—025X004N

2020—Bobs Variant-Dewar association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Bobs Variant loam, 4 to 15 percent slopes (65 percent)
• Dewar gravelly loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Hunnton gravelly loam, 2 to 8 percent slopes (9 percent)
• Inclusion 2: Aridic Durixerolls, loamy, mixed, frigid, shallow, 4 to 15 percent slopes (4 percent)
• Inclusion 3: Welch silt loam, 2 to 8 percent slopes (2 percent)

Characteristics of the Bobs Variant Soil

Classification: Aridic Petrocalcic Palexerolls, loamy-skeletal, mixed, frigid, shallow
Position on landscape: Upper parts of summits and side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,400 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, antelope bitterbrush, serviceberry, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 9 inches
Texture: Loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 19 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline

Depth: 19 to 34 inches
Texture: Indurated hardpan
Reaction: Moderately alkaline

Depth: 34 to 40 inches
Texture: Gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 40 to 54 inches
Texture: Extremely gravelly loam
Structure: Massive
Consistence: Hard, friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 10 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.2 to 2.6 inches
Water-supplying capacity: 6.5 to 9 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.28; T value—1; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Dewar Soil

Classification: Xerollic Durargids, loamy, mixed, mesic, shallow
Position on landscape: Lower parts of the convex summits of fan piedmont remnants
Parent material: Loess over mixed alluvium influenced by volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, Thurber needlegrass

Climatic Data

Average annual precipitation: About 9 inches

Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Depth: 0 to 5 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 5 to 11 inches
Texture: Gravelly silty clay loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 11 to 17 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Depth: 17 to 44 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Strongly alkaline

Soil and Water Features

Depth to a hardpan: 13 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.1 to 2.8 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.37; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Durargids, fine, montmorillonitic, mesic
Position on landscape: Lower parts of the smooth summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Aridic Durixerolls, loamy, mixed, frigid, shallow
Position on landscape: Upper side slopes of fan piedmont remnants
Distinctive present vegetation: Black sagebrush, Thurber needlegrass

Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Bobs Variant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Dewar soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Bobs Variant Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Dewar Soil for Various Uses and Practices
Range seeding: Poor—droughty, too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—piping
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Drainage: Deep to water
Irrigation: Cemented pan, slope, erodes easily
Terraces and diversions: Cemented pan, erodes easily

Interpretive Groups

Capability classification: Bobs Variant soil—7s, nonirrigated; Dewar soil—4e, irrigated, 7s, nonirrigated
Range site: Bobs Variant soil—025X012N; Dewar soil—025X019N; Inclusion 1—025X019N; Inclusion 2—024X031N; Inclusion 3—025X003N

2031—Shalcleav-Tweener association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Shalcleav extremely channery silt loam, 4 to 15 percent slopes (60 percent)
• Tweener very gravelly loam, 4 to 15 percent slopes (25 percent)
Contrasting inclusions:
• Inclusion 1: Sumine very gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Welch silt loam, 0 to 2 percent slopes (5 percent)
• Inclusion 3: Rock outcrop (4 percent)
• Inclusion 4: Cumulic Cryaquolls, loamy-skeletal, mixed, 2 to 4 percent slopes (1 percent)

Characteristics of the Shalcleav Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Upper parts of crests and side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite or welded tuff
Slope range: 4 to 15 percent
Elevation: 6,700 to 6,800 feet
Dominant present vegetation: Black sagebrush, low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 16 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent flagstones on the surface: 5
Percent channers on the surface: 65

Depth: 0 to 3 inches
Texture: Extremely channery silt loam

Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 3 to 5 inches
Texture: Very channery clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 5 to 10 inches
Texture: Extremely flaggy clay
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 4 to 12 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 0.3 to 0.8 inch
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Tweener Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower parts of crests and side slopes of hills
Parent material: Residuum and colluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,600 to 6,700 feet
Dominant present vegetation: Antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 4 to 10 inches
Texture: Very cobbly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 10 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 7 to 14 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 0.7 inch to 1.2 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Steep side slopes of hills
Distinctive present vegetation: Mountain big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 3
Position on landscape: Side slopes of hills
Distinctive present vegetation: None
Inclusion 4
Classification: Cumulic Cryaquolls, loamy-skeletal, mixed
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Quaking aspen

Major Uses

Current uses: Livestock grazing, wildlife habitat

Suitability of the Shalcleav soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Tweener soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Shalcleav Soil for Various Uses and Practices
Range seeding: Poor—droughty, depth to rock, small stones
Roadfill: Poor—depth to rock, large stones
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock, large stones
Local roads and streets: Severe—depth to rock, large stones
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Tweener Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Shalcleav and Tweener soils—7s, nonirrigated
Range site: Shalcleav soil—025X057N; Tweener soil—025X007N; Inclusion 1—025X009N; Inclusion 2—025X003N; Inclusion 3—none; Inclusion 4—025X064N

2040—Cameek-Bilbo-Cameek, gently sloping association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Cameek silt loam, 4 to 15 percent slopes (55 percent)

• Bilbo very gravelly loam, 15 to 50 percent slopes (15 percent)
• Cameek silt loam, 2 to 4 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Gochea gravelly loam, 2 to 8 percent slopes (8 percent)
• Inclusion 2: Igdell gravelly loam, 4 to 15 percent slopes (3 percent)
• Inclusion 3: Typic Argixerolls, fine, montmorillonitic, frigid, 4 to 15 percent) slopes (2 percent)
• Inclusion 4: Rock outcrop (2 percent)

Characteristics of the Cameek Soil

Classification: Aridic Durixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Shoulders and side slopes of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 4 to 15 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 18 inches
Texture: Gravelly sandy clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 18 to 40 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Characteristics of the Bilbo Soil

Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: South-facing side slopes of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 15 to 50 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, cheatgrass

Climatic Data

Average annual precipitation: About 10 inches
Average annual air temperature: About 46 degrees F
Frost-free period: About 110 days

Typical Profile

Percent pebbles on the surface: 70

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 22 inches
Texture: Very gravelly clay
Structure: Prismatic
Consistence: Hard, firm
Reaction: Neutral

Depth: 22 to 60 inches
Texture: Extremely gravelly loamy sand
Structure: Massive
Consistence: Loose
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.2 to 3.1 inches
Water-supplying capacity: 6.0 to 9.0 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Gently Sloping Cameek Soil

Classification: Aridic Durixerolls, clayey, montmorillonitic, frigid, shallow
Position on landscape: Summits of fan piedmont remnants
Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 2 to 4 percent
Elevation: 5,000 to 6,000 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Platy
Consistence: Slightly hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 7 to 18 inches
Texture: Gravelly sandy clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 18 to 40 inches
Texture: Indurated hardpan

Soil and Water Features

Depth to a hardpan: 14 to 20 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.5 to 3.2 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—high
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Toe slopes adjacent to drainageways
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Crests, shoulders, and upper side slopes of fan piedmont remnants
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: North-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Idaho fescue

Inclusion 4
Position on landscape: Crests and side slopes of fan piedmont remnants with a rock core
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cameek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Bilbo soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the gently sloping Cameek soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cameek Soil for Various Uses and Practices

Range seeding: Poor—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—cemented pan, low strength, shrink-swell potential
Pond reservoir areas: Severe—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer, excess gypsum
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Bilbo Soil for Various Uses and Practices

Range seeding: Poor—small stones
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—cutbanks cave, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Probable source
Gravel: Probable source

Suitability and Limitations of the Gently Sloping Cameek Soil for Various Uses and Practices

Range seeding: Poor—too arid
Roadfill: Poor—cemented pan
Topsoil: Poor—cemented pan, small stones
Daily cover for landfill: Poor—cemented pan, seepage, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—cemented pan, low strength, shrink-swell potential
Pond reservoir areas: Severe—cemented pan
Embankments, dikes, and levees: Severe—thin layer, excess gypsum
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Both Cameek soils and the Bilbo soil—7s, nonirrigated
Range site: Cameek soil—025X014N; Bilbo soil—025X015N; the gently sloping Cameek soil—025X014N; Inclusion 1—025X014N; Inclusion 2—025X017N; Inclusion 3—025X027N; Inclusion 4—none

2070—Heechee-Manard-Vitale association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Heechee silt loam, 2 to 8 percent slopes (35 percent)
• Manard silt loam, 2 to 8 percent slopes, extremely stony (30 percent)
• Vitale gravelly loam, 15 to 30 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Chen gravelly loam, 4 to 15 percent slopes, stony (10 percent)
• Inclusion 2: Pachic Haploxerolls, coarse-silty, mixed, frigid, 2 to 8 percent slopes (5 percent)

Characteristics of the Heechee Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits of plateaus
Parent material: Alluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Basin big sagebrush, antelope bitterbrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 11 inches
Texture: Silt loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 11 to 33 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 33 to 50 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Neutral

Depth: 50 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 50 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.8 to 6.7 inches
Water-supplying capacity: 10 to 14 inches

Runoff: Slow
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—4; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Manard Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 5

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 22 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 22 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 37 inches
Depth to bedrock: 20 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vitale Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Slightly concave side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 15

Depth: 0 to 6 inches
Texture: Gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 6 to 23 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 2.8 to 3.4 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid

Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—moderate
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper parts of convex summits and side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue
Inclusion 2
Classification: Pachic Haploxerolls, coarse-silty, mixed, frigid
Position on landscape: Narrow drainageways on plateaus
Distinctive present vegetation: Basin big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Heechee soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the Manard soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—good; shrubs (nonirrigated)—good; wetland plants—fair; shallow water areas—very poor
Suitability of the Vitale soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Heechee Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—depth to rock, thin layer, large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—small stones
Shallow excavations: Moderate—large stones
Local roads and streets: Moderate—frost action, large stones
Pond reservoir areas: Severe—seepage
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines, large stones
Gravel: Improbable source—excess fines, large stones
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Large stones, erodes easily

Suitability and Limitations of the Manard Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, depth to rock, cemented pan
Terraces and diversions: Depth to rock, cemented pan

Suitability and Limitations of the Vitale Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Heechee soil—4e, irrigated, 7c, nonirrigated; Manard soil—4s, irrigated, 7s, nonirrigated; Vitale soil—7e, nonirrigated
Range site: Heechee soil—025X007N; Manard soil—025X017N; Vitale soil—025X012N; Inclusion 1—025X017N; Inclusion 2—025X027N

2071—Heechee-Heechee, very cobbly association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Heechee gravelly loam, 4 to 15 percent slopes (55 percent)

• Heechee very cobbly loam, 15 to 30 percent slopes (35 percent)
Contrasting inclusion:
• Inclusion 1: Aridic Argixerolls, loamy-skeletal, mixed, frigid, 8 to 30 percent slopes (10 percent)

Characteristics of the Heechee Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower parts of summits and side slopes of fan piedmont remnants
Parent material: Alluvium derived from rhyolite
Slope range: 4 to 15 percent
Elevation: 6,400 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 11 inches
Texture: Gravelly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 11 to 33 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 33 to 63 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.4 to 6.3 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Very Cobbly Heechee Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Upper parts of summits and side slopes of fan piedmont remnants
Parent material: Alluvium derived from rhyolite
Slope range: 15 to 30 percent
Elevation: 6,600 to 6,800 feet
Dominant present vegetation: Antelope bitterbrush, snowberry, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 5
Percent cobbles on the surface: 15
Percent pebbles on the surface: 25

Depth: 0 to 11 inches
Texture: Very cobbly loam
Structure: Angular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 11 to 33 inches
Texture: Very gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 33 to 63 inches
Texture: Extremely cobbly sandy loam
Structure: Massive
Consistence: Hard, very friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 2.8 to 5.9 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low

Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusion

Inclusion 1
Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower parts of summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Heechee soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor
Suitability of the very cobbly Heechee soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Heechee Soil for Various Uses and Practices
Range seeding: Good
Roadfill: Fair—large stones
Topsoil: Poor—small stones, area reclaim
Daily cover for landfill: Poor—seepage, small stones
Shallow excavations: Moderate—large stones, slope
Local roads and streets: Moderate—slope, frost action, large stones
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones
Drainage: Deep to water
Irrigation: Large stones, droughty, slope
Terraces and diversions: Slope, large stones

Suitability and Limitations of the Very Cobbly Heechee Soil for Various Uses and Practices
Range seeding: Poor—large stones
Roadfill: Fair—large stones, slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—seepage, small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage, large stones
Sand: Improbable source—large stones
Gravel: Improbable source—large stones

Interpretive Groups

Capability classification: Heechee soil—4e, irrigated, 7c, nonirrigated; the very cobbly Heechee soil—7s, nonirrigated
Range site: Heechee soil—025X027N; the very cobbly Heechee soil—025X007N; Inclusion 1—025X014N

2080—Igdell-Manard-Ebic association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Igdell gravelly silt loam, 2 to 8 percent slopes, stony (40 percent)
• Manard silt loam, 2 to 8 percent slopes, extremely stony (30 percent)
• Ebic gravelly loam, 2 to 8 percent slopes, extremely stony (15 percent)
Contrasting inclusions:
• Inclusion 1: Leevan gravelly loam, 8 to 15 percent slopes, stony (5 percent)
• Inclusion 2: Pachic Haploxerolls, coarse-silty, mixed, frigid, 2 to 8 percent slopes (5 percent)
• Inclusion 3: Typic Palexerolls, fine, montmorillonitic, frigid, 2 to 8 percent slopes (5 percent)

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower parts of the slightly convex summits of plateaus
Parent material: Loess cap over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 8 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 23 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 23 to 27 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 4.3 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Manard Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Upper parts of the summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,200 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10

Percent cobbles on the surface: 5

Depth: 0 to 5 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 5 to 22 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 22 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 37 inches
Depth to bedrock: 20 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Lower parts of the slightly concave summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,200 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Pachic Haploxerolls, coarse-silty, mixed, frigid
Position on landscape: Inset fans
Distinctive present vegetation: Basin big sagebrush, bluebunch wheatgrass, big sagebrush, Idaho fescue

Inclusion 3
Classification: Typic Palexerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Manard soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor

Suitability and Limitations of the Igdell Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Manard Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, depth to rock, cemented pan
Terraces and diversions: Depth to rock, cemented pan

Suitability and Limitations of the Ebic Soil for Various Uses and Practices

Range seeding: Poor—rooting depth, droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, shrink-swell potential
Pond reservoir areas: Moderate—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Igdell soil—4e, irrigated, 7s, nonirrigated; Manard soil—4s, irrigated, 7s, nonirrigated; Ebic soil—7s, nonirrigated
Range site: Igdell soil—025X017N; Manard soil—025X017N; Ebic soil—025X017N; Inclusion 1—025X017N; Inclusion 2—025X027N; Inclusion 3—025X017N

2081—Igdell-Gance-Eboda association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Igdell gravelly silt loam, 2 to 15 percent slopes (50 percent)
• Gance very gravelly loam, 15 to 30 percent slopes (20 percent)
• Eboda loam, 4 to 15 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Loncan Variant loam, 0 to 2 percent slopes (5 percent)
• Inclusion 2: Hart Camp loam, 4 to 15 percent slopes (5 percent)

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Parent material: Loess cap over mixed alluvium
Slope range: 2 to 15 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 8 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 23 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 23 to 27 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 4.3 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Gance Soil

Classification: Durixerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Convex side slopes of fan piedmont remnants

Parent material: Mixed alluvium influenced by loess and volcanic ash
Slope range: 15 to 30 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Big sagebrush, bottlebrush squirreltail, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 9 inches
Average annual air temperature: About 48 degrees F
Frost-free period: About 110 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 40

Depth: 0 to 4 inches
Texture: Very gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 4 to 29 inches
Texture: Very gravelly clay
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 29 to 68 inches
Texture: Extremely gravelly sandy loam
Structure: Massive
Consistence: Hard, brittle
Reaction: Moderately alkaline
Salinity: 0 to 8 mmhos per cm

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 1.8 to 6.4 inches
Water-supplying capacity: 7.5 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.15; T value—5; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave side slopes of fan piedmont remnants with a rock core
Parent material: Loess over residuum derived from tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,700 feet
Dominant present vegetation: Big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Aridic Duric Haploxerolls, fine-loamy, mixed, mesic
Position on landscape: Inset fans

Distinctive present vegetation: Basin big sagebrush, basin wildrye

Inclusion 2

Classification: Aridic Argixerolls, loamy, mixed, frigid, shallow

Position on landscape: Side slopes of rock pediment remnants

Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Hayland, pasture, cropland

Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor

Suitability of the Gance soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability of the Eboda soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—very poor; shallow water areas—very poor

Suitability and Limitations of the Igdell Soil for Various Uses and Practices

Range seeding: Poor—rooting depth

Roadfill: Poor—cemented pan, low strength, shrink-swell potential

Topsoil: Poor—small stones

Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack

Shallow excavations: Severe—cemented pan

Local roads and streets: Severe—low strength, shrink-swell potential

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Drainage: Deep to water

Irrigation: Droughty, percs slowly, cemented pan

Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Gance Soil for Various Uses and Practices

Range seeding: Poor—small stones

Roadfill: Fair—large stones, slope

Topsoil: Poor—small stones, area reclaim, slope

Daily cover for landfill: Poor—seepage, small stones, slope

Shallow excavations: Severe—slope

Local roads and streets: Severe—slope

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Severe—seepage, large stones

Sand: Improbable source—small stones

Gravel: Probable source

Suitability and Limitations of the Eboda Soil for Various Uses and Practices

Range seeding: Fair—too arid

Roadfill: Poor—depth to rock, low strength

Topsoil: Poor—small stones

Daily cover for landfill: Poor—depth to rock

Shallow excavations: Moderate—depth to rock, slope

Local roads and streets: Severe—low strength

Pond reservoir areas: Severe—slope

Embankments, dikes, and levees: Severe—thin layer

Sand: Improbable source—excess fines

Gravel: Improbable source—excess fines

Drainage: Deep to water

Irrigation: Depth to rock, slope

Terraces and diversions: Slope, depth to rock

Interpretive Groups

Capability classification: Igdell soil—4e, irrigated, 7s, nonirrigated; Gance soil—7s, nonirrigated; Eboda soil—4e, irrigated, 6c, nonirrigated

Range site: Igdell soil—025X017N; Gance soil—025X019N; Eboda soil—025X027N; Inclusion 1—025X003N; Inclusion 2—025X027N

2082—Igdell-Shivlum association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:

- Igdell gravelly silt loam, 2 to 8 percent slopes (50 percent)
- Shivlum loam, 4 to 15 percent slopes (35 percent)

Contrasting inclusions:

- Inclusion 1: Durargidic Argixerolls, fine-loamy, mixed, frigid, 4 to 15 percent slopes (10 percent)
- Inclusion 2: Stampede gravelly silt loam, 4 to 15 percent slopes (2 percent)
- Inclusion 3: Crooked Creek silty clay loam, 0 to 2 percent slopes (2 percent)
- Inclusion 4: Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded (1 percent)

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Loess cap over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 30

Depth: 0 to 8 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 23 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 23 to 27 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 4.3 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Shivlum Soil

Classification: Aridic Argixerolls, fine-silty, mixed, frigid
Position on landscape: Concave side slopes of fan piedmont remnants
Parent material: Loess cap over mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,300 to 6,600 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Mildly alkaline

Depth: 9 to 34 inches
Texture: Silty clay loam
Structure: Prismatic
Consistence: Hard, friable
Reaction: Neutral

Depth: 34 to 60 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 11 to 13 inches
Water-supplying capacity: 10 to 16 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.37; T value—5; wind erodibility group—6
Hazard of erosion: By water—moderate; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Durargidic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Convex summits of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Idaho fescue
Inclusion 2
Classification: Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits and side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, Thurber needlegrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow flood plains next to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow flood plains
Distinctive present vegetation: Tufted hairgrass, Nevada bluegrass, sedge

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Shivlum soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Igdell Soil for Various Uses and Practices
Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Shivlum Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Poor—low strength
Topsoil: Poor—slope
Daily cover for landfill: Poor—slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—low strength, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Slight
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Igdell soil—4e, irrigated, 7s, nonirrigated; Shivlum soil—6c, nonirrigated
Range site: Igdell soil—025X017N; Shivlum soil—025X027N; Inclusion 1—025X027N; Inclusion 2—025X014N; Inclusion 3—025X003N; Inclusion 4—025X005N

2083—Igdell-Kleckner association

Map Unit Setting

Position on landscape: Fan piedmont remnants

Composition

Major components:
• Igdell very gravelly clay loam, 4 to 15 percent slopes (70 percent)
• Kleckner gravelly loam, 4 to 15 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Bilbo gravelly loam, 30 to 50 percent slopes (5 percent)
• Inclusion 2: Crooked Creek silty clay loam, 2 to 4 percent slopes (5 percent)
• Inclusion 3: Welch loam, 0 to 2 percent slopes (3 percent)
• Inclusion 4: Donna gravelly loam, 4 to 15 percent slopes (2 percent)

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of fan piedmont remnants
Parent material: Loess cap over mixed alluvium
Slope range: 4 to 15 percent

Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Low sagebrush, Sandberg bluegrass, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 40

Depth: 0 to 8 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 23 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 23 to 27 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline
Salinity: 0 to 2 mmhos per cm

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.4 to 4.3 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.37; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Kleckner Soil

Classification: Aridic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits of fan piedmont remnants
Parent material: Mixed alluvium
Slope range: 4 to 15 percent
Elevation: 6,200 to 6,400 feet
Dominant present vegetation: Big sagebrush, antelope bitterbrush, Sandberg bluegrass

Climatic Data

Average annual precipitation: About 11 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 25 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 25 to 41 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 41 to 63 inches
Texture: Loam
Structure: Massive
Consistence: Hard, friable
Reaction: Mildly alkaline

Soil and Water Features

Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 5.8 to 8.5 inches
Water-supplying capacity: 10 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—5; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Haplargids, clayey-skeletal, montmorillonitic, mesic
Position on landscape: Steep, south-facing side slopes of fan piedmont remnants
Distinctive present vegetation: Big sagebrush, bluebunch wheatgrass
Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow flood plains
Distinctive present vegetation: Alpine timothy, Nevada bluegrass
Inclusion 3
Classification: Cumulic Haplaquolls, fine-loamy, mixed, frigid
Position on landscape: Narrow flood plains next to the entrenched part of stream channels
Distinctive present vegetation: Basin big sagebrush, basin wildrye
Inclusion 4
Classification: Abruptic Aridic Durixerolls, very fine, montmorillonitic, frigid
Position on landscape: Smooth summits of fan piedmont remnants
Distinctive present vegetation: Low sagebrush, Thurber needlegrass

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Kleckner soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Igdell Soil for Various Uses and Practices
Range seeding: Poor—rooting depth, small stones
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Slope, cemented pan, erodes easily

Suitability and Limitations of the Kleckner Soil for Various Uses and Practices
Range seeding: Fair—too arid
Roadfill: Fair—large stones, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Fair—small stones, slope
Shallow excavations: Moderate—too clayey, large stones, slope
Local roads and streets: Moderate—slope, shrink-swell potential, large stones
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—piping, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Igdell soil—4s, irrigated, 7s, nonirrigated; Kleckner soil—6s, nonirrigated
Range site: Igdell soil—025X017N; Kleckner soil—025X014N; Inclusion 1—025X015N; Inclusion 2—025X006N; Inclusion 3—025X003N; Inclusion 4—025X018N

2090—Manard-Igdell-Eboda association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Manard silt loam, 2 to 8 percent slopes, extremely stony (35 percent)
• Igdell gravelly silt loam, 2 to 8 percent slopes, stony (30 percent)
• Eboda loam, 2 to 4 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Typic Palexerolls, fine, montmorillonitic, frigid, 2 to 8 percent slopes, stony (10 percent)
• Inclusion 2: Ebic gravelly loam, 8 to 15 percent slopes, stony (5 percent)

Characteristics of the Manard Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid

Position on landscape: Upper parts of the convex summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,100 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 5

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 7 to 22 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 22 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 37 inches
Depth to bedrock: 20 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Igdell Soil

Classification: Abruptic Aridic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower parts of the convex summits of plateaus
Parent material: Loess cap over mixed alluvium
Slope range: 2 to 8 percent
Elevation: 6,100 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: .1
Percent pebbles on the surface: 30

Depth: 0 to 8 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Neutral

Depth: 8 to 23 inches
Texture: Gravelly clay
Structure: Prismatic
Consistence: Very hard, firm
Reaction: Mildly alkaline

Depth: 23 to 27 inches
Texture: Gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, very friable
Reaction: Mildly alkaline
Salinity: 0 to 2 mmhos per cm

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, extremely firm
Reaction: Moderately alkaline

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.3 to 4.3 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Medium
Hydrologic group: C

Erosion factors (surface layer): K value—.49; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Low

Characteristics of the Eboda Soil

Classification: Aridic Argixerolls, fine-loamy, mixed, frigid
Position on landscape: Concave summits of plateaus
Parent material: Loess over residuum derived from welded tuff
Slope range: 2 to 4 percent
Elevation: 6,100 to 6,300 feet
Dominant present vegetation: Big sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 10

Depth: 0 to 9 inches
Texture: Loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 33 inches
Texture: Clay loam
Structure: Angular blocky
Consistence: Very hard, firm
Reaction: Neutral

Depth: 33 to 39 inches
Texture: Gravelly sandy clay loam
Structure: Angular blocky
Consistence: Hard, friable
Reaction: Neutral

Depth: 39 inches
Texture: Weathered bedrock

Soil and Water Features

Depth to bedrock: 23 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 5.2 to 6.8 inches
Water-supplying capacity: 10.5 to 14 inches
Runoff: Medium
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—5
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Palexerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Side slopes of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Manard soil for elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Igdell soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Eboda soil for named elements: Grain and seed crops (irrigated)—fair; domestic grasses and legumes (irrigated)—fair; shrubs (nonirrigated)—good; wetland plants—poor; shallow water areas—very poor

Suitability and Limitations of the Manard Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Drainage: Deep to water
Irrigation: Percs slowly, depth to rock, cemented pan
Terraces and diversions: Depth to rock, cemented pan

Suitability and Limitations of the Igdell Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—cemented pan, low strength, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, too clayey, hard to pack
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Moderate—cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Droughty, percs slowly, cemented pan
Terraces and diversions: Cemented pan, erodes easily

Suitability and Limitations of the Eboda Soil for Various Uses and Practices

Range seeding: Fair—too arid
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Moderate—depth to rock
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—seepage, depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Depth to rock, slope
Terraces and diversions: Depth to rock

Interpretive Groups

Capability classification: Manard soil—4s, irrigated, 7s, nonirrigated; Igdell soil—4e, irrigated, 7s, nonirrigated; Eboda soil—4e, irrigated, 6c, nonirrigated
Range site: Manard soil—025X017N; Igdell soil—025X017N; Eboda soil—025X027N; Inclusion 1—025X017N; Inclusion 2—025X017N

3000—Vitale-Ebic-Chen association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Vitale very gravelly loam, 4 to 15 percent slopes, rubbly (40 percent)
• Ebic gravelly loam, 8 to 30 percent slopes, extremely stony (25 percent)
• Chen gravelly silt loam, 2 to 8 percent slopes, very stony (20 percent)
Contrasting inclusions:
• Inclusion 1: Rock outcrop (5 percent)
• Inclusion 2: Glean gravelly silt loam, 4 to 8 percent slopes (5 percent)
• Inclusion 3: Cleavage gravelly loam, 2 to 8 percent slopes, stony (5 percent)

Characteristics of the Vitale Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Concave summits and side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 20
Percent cobbles on the surface: 5

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Slightly acid

Depth: 6 to 23 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 23 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none

Permeability: Moderate
Available water capacity: 3.5 to 4.2 inches
Water-supplying capacity: 8 to 11 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 30 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits of plateaus
Parent material: Residuum derived from welded tuff and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,200 to 7,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3
Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low

Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Position on landscape: Summits and side slopes of plateaus
Distinctive present vegetation: None

Inclusion 2
Classification: Pachic Haploxerolls, loamy-skeletal, mixed, frigid
Position on landscape: Lower, concave side slopes of mountains
Distinctive present vegetation: Mountain big sagebrush, Idaho fescue

Inclusion 3
Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Vitale soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Vitale Soil for Various Uses and Practices
Range seeding: Poor—small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Ebic Soil for Various Uses and Practices
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Chen Soil for Various Uses and Practices
Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Vitale, Ebic, and Chen soils—7s, nonirrigated
Range site: Vitale soil—025X027N; Ebic soil—025X017N; Chen soil—025X017N; Inclusion 1—none; Inclusion 2—025X056N; Inclusion 3—025X017N

3010—Ebic-Manard-Chen association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Ebic gravelly loam, 4 to 15 percent slopes, extremely stony (40 percent)
• Manard silt loam, 2 to 8 percent slopes, extremely stony (25 percent)
• Chen gravelly silt loam, 2 to 8 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Typic Palexerolls, fine, montmorillonitic, frigid, 2 to 8 percent slopes (10 percent)
• Inclusion 2: Cleavage gravelly loam, 2 to 8 percent slopes, stony (5 percent)

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,300 feet

Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Manard Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Smooth summits of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 5

Depth: 0 to 7 inches
Texture: Silt loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 7 to 22 inches
Texture: Clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 22 to 24 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Very hard, very firm
Reaction: Moderately alkaline

Depth: 24 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to a hardpan: 20 to 37 inches
Depth to bedrock: 20 to 38 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 4.1 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.43; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Chen Soil

Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex summits of plateaus
Parent material: Residuum derived from tuff and influenced by loess and volcanic ash
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Percent pebbles on the surface: 15

Depth: 0 to 5 inches
Texture: Gravelly silt loam
Structure: Granular
Consistence: Soft, very friable
Reaction: Neutral

Depth: 5 to 15 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 12 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 1.3 to 1.6 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.20; T value—1; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1

Classification: Typic Argixerolls, fine, montmorillonitic, frigid
Position on landscape: Slightly concave summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex summits of plateaus
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat

Potential foreseeable uses: Hayland, pasture, cropland
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Manard soil for named elements: Grain and seed crops (irrigated)—poor; domestic grasses and legumes (irrigated)—poor; wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair; wetland plants—poor; shallow water areas—very poor
Suitability of the Chen soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Ebic Soil for Various Uses and Practices

Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Moderate—depth to rock, slope, shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Manard Soil for Various Uses and Practices

Range seeding: Poor—rooting depth
Roadfill: Poor—depth to rock, low strength
Topsoil: Poor—thin layer
Daily cover for landfill: Poor—depth to rock
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—low strength
Pond reservoir areas: Moderate—depth to rock, cemented pan, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines
Drainage: Deep to water
Irrigation: Percs slowly, depth to rock, cemented pan
Terraces and diversions: Depth to rock, cemented pan

Suitability and Limitations of the Chen Soil for Various Uses and Practices

Range seeding: Poor—droughty
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock

Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Ebic soil—7s, nonirrigated; Manard soil—4s, irrigated, 7s, nonirrigated; Chen soil—7s, nonirrigated
Range site: Ebic soil—025X017N; Manard soil—025X017N; Chen soil—025X017N; Inclusion 1—025X017N; Inclusion 2—025X017N

3020—Cleavmor-Blackleg association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cleavmor very gravelly loam, 2 to 4 percent slopes (70 percent)
• Blackleg gravelly loam, 8 to 15 percent slopes, very stony (15 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Calciorthids, loamy-skeletal, mixed, frigid, 2 to 8 percent slopes (10 percent)
• Inclusion 2: Chen gravelly silt loam, 2 to 8 percent slopes, stony (5 percent)

Characteristics of the Cleavmor Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from argillite or welded tuff
Slope range: 2 to 4 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 15 inches
Texture: Extremely gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.7 inches
Water-supplying capacity: 5.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Blackleg Soil

Classification: Typic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Side slopes of hills
Parent material: Alluvium and colluvium derived from welded tuff or argillite
Slope range: 8 to 15 percent
Elevation: 5,700 to 6,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.9 to 3.5 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Calciorthids, loamy-skeletal, mixed, frigid
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: Black sagebrush, Indian ricegrass
Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave crests of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavmor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Blackleg soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavmor Soil for Various Uses and Practices
Range seeding: Poor—droughty, too arid, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Blackleg Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, shrink-swell potential, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavmor and Blackleg soils—7s, nonirrigated
Range site: Cleavmor soil—024X031N; Blackleg soil—025X027N; Inclusion 1—024X031N; Inclusion 2—025X017N

3030—Cleavmor-Ebic-Blackleg association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Cleavmor very gravelly loam, 8 to 30 percent slopes (40 percent)
• Ebic gravelly loam, 8 to 30 percent slopes, extremely stony (25 percent)
• Blackleg gravelly loam, 8 to 15 percent slopes, very stony (20 percent)
Contrasting inclusions:
• Inclusion 1: Xerollic Calciorthids, loamy-skeletal, mixed, frigid, 8 to 15 percent slopes (10 percent)
• Inclusion 2: Rock outcrop (5 percent)

Characteristics of the Cleavmor Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from argillite or welded tuff
Slope range: 8 to 30 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 10
Percent pebbles on the surface: 45

Depth: 0 to 9 inches
Texture: Very gravelly loam
Structure: Granular
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 9 to 15 inches
Texture: Extremely gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.4 to 1.7 inches
Water-supplying capacity: 5.5 to 7.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.15; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Ebic Soil

Classification: Typic Palexerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 30 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 10 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 10 to 27 inches
Texture: Very cobbly clay
Structure: Angular blocky
Consistence: Very hard, very firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 30 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Very slow
Available water capacity: 2.2 to 2.7 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: D
Erosion factors (surface layer): K value—.17; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Blackleg Soil

Classification: Typic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Parent material: Alluvium and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 5,600 to 6,000 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.9 to 3.5 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Contrasting Inclusions

Inclusion 1
Classification: Xerollic Calciorthids, loamy-skeletal, mixed, frigid
Position on landscape: Smooth side slopes of hills
Distinctive present vegetation: Black sagebrush, Thurber needlegrass
Inclusion 2
Position on landscape: Side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Cleavmor soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Ebic soil for named elements: Wild herbaceous plants (nonirrigated)—poor; shrubs (nonirrigated)—poor
Suitability of the Blackleg soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Cleavmor Soil for Various Uses and Practices
Range seeding: Poor—too arid, droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—depth to rock, slope
Pond reservoir areas: Severe—depth to rock, slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Ebic Soil for Various Uses and Practices
Range seeding: Poor—droughty, rooting depth
Roadfill: Poor—depth to rock
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, too clayey
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Blackleg Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, shrink-swell potential, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Cleavmor, Ebic, and Blackleg soils—7s, nonirrigated
Range site: Cleavmor soil—024X031N; Ebic soil—025X017N; Blackleg soil—025X027N; Inclusion 1—024X031N; Inclusion 2—none

3040—Peevywell-Cleavage-Leevan association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
- Peevywell gravelly silt loam, 4 to 15 percent slopes, extremely stony (35 percent)
- Cleavage very gravelly loam, 2 to 8 percent slopes (30 percent)
- Leevan gravelly loam, 8 to 15 percent slopes (20 percent)

Contrasting inclusions:
- Inclusion 1: Blackleg gravelly loam, 8 to 15 percent slopes, very stony (10 percent)
- Inclusion 2: Chen very gravelly loam, 4 to 15 percent slopes (3 percent)
- Inclusion 3: Rock outcrop (2 percent)

Characteristics of the Peevywell Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Lower side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 5,800 to 6,100 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 5

Depth: 0 to 9 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 16 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 16 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 28 to 46 inches
Texture: Indurated hardpan
Structure: Massive
Reaction: Mildly alkaline

Depth: 46 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 24 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.4 to 5.0 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests and summits of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 5,800 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable

Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D
Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Leevan Soil

Classification: Typic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Upper side slopes of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 8 to 15 percent
Elevation: 6,000 to 6,300 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 90 days

Typical Profile

Percent cobbles on the surface: 5
Percent pebbles on the surface: 20

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 9 to 26 inches
Texture: Very gravelly clay
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Mildly alkaline

Depth: 26 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.1 to 3.6 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Typic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Distinctive present vegetation: Big sagebrush, Thurber needlegrass

Inclusion 2
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Crests and summits of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 3
Position on landscape: Crests and side slopes of hills
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Peevywell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Leevan soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Peevywell Soil for Various Uses and Practices
Range seeding: Fair—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential

Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices

Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Leevan Soil for Various Uses and Practices

Range seeding: Fair—droughty, too arid
Roadfill: Poor—depth to rock, shrink-swell potential
Topsoil: Poor—small stones
Daily cover for landfill: Poor—depth to rock, too clayey, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—shrink-swell potential
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Peevywell soil—6s, nonirrigated; Cleavage soil—7s, nonirrigated; Leevan soil—7s, nonirrigated
Range site: Peevywell soil—025X017N; Cleavage soil—025X017N; Leevan soil—025X017N; Inclusion 1—025X027N; Inclusion 2—025X017N; Inclusion 3—none

3050—Blackleg-Peevywell-Cleavage association

Map Unit Setting

Position on landscape: Hills

Composition

Major components:
• Blackleg gravelly loam, 4 to 15 percent slopes, very stony (40 percent)
• Peevywell gravelly silt loam, 4 to 15 percent slopes, extremely stony (30 percent)
• Cleavage very gravelly loam, 2 to 8 percent slopes (15 percent)
Contrasting inclusions:
• Inclusion 1: Chen very gravelly loam, 4 to 15 percent slopes (10 percent)
• Inclusion 2: Crooked Creek silty clay loam, 2 to 4 percent slopes (5 percent)

Characteristics of the Blackleg Soil

Classification: Typic Durixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Concave side slopes of hills
Parent material: Alluvium and colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Mountain big sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 15 inches
Average annual air temperature: About 41 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 3

Depth: 0 to 4 inches
Texture: Gravelly loam
Structure: Platy
Consistence: Soft, very friable
Reaction: Neutral

Depth: 4 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, friable
Reaction: Mildly alkaline

Depth: 27 to 40 inches
Texture: Indurated hardpan
Structure: Massive
Consistence: Extremely hard, brittle

Soil and Water Features

Depth to a hardpan: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 2.9 to 3.5 inches
Water-supplying capacity: 7.5 to 10 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—6

Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Moderate
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Low

Characteristics of the Peevywell Soil

Classification: Typic Durixerolls, fine, montmorillonitic, frigid
Position on landscape: Convex side slopes of hills
Parent material: Colluvium derived from welded tuff
Slope range: 4 to 15 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 13 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 5

Depth: 0 to 9 inches
Texture: Gravelly silt loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Neutral

Depth: 9 to 16 inches
Texture: Clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 16 to 28 inches
Texture: Clay
Structure: Angular blocky
Consistence: Extremely hard, extremely firm
Reaction: Neutral

Depth: 28 to 46 inches
Texture: Indurated hardpan
Structure: Massive
Reaction: Mildly alkaline

Depth: 46 to 60 inches
Texture: Very gravelly sandy loam
Structure: Massive
Consistence: Hard, firm
Reaction: Mildly alkaline

Soil and Water Features

Depth to a hardpan: 24 to 35 inches
Depth to bedrock: More than 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Slow
Available water capacity: 4.4 to 5.0 inches
Water-supplying capacity: 9.5 to 12 inches
Runoff: Medium
Hydrologic group: C
Erosion factors (surface layer): K value—.20; T value—2; wind erodibility group—6
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: High
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Cleavage Soil

Classification: Lithic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Crests of hills
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 2 to 8 percent
Elevation: 6,000 to 6,500 feet
Dominant present vegetation: Low sagebrush, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 44 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 6 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 6 to 15 inches
Texture: Very gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Mildly alkaline

Depth: 15 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 14 to 20 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 1.6 to 1.9 inches
Water-supplying capacity: 6.5 to 8.5 inches
Runoff: Medium
Hydrologic group: D

Erosion factors (surface layer): K value—.10; T value—1; wind erodibility group—7
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Lithic Argixerolls, clayey-skeletal, montmorillonitic, frigid
Position on landscape: Slightly concave crests of hills
Distinctive present vegetation: Low sagebrush, Idaho fescue

Inclusion 2
Classification: Cumulic Haplaquolls, fine, montmorillonitic, frigid
Position on landscape: Narrow drainageways on hills
Distinctive present vegetation: Basin big sagebrush, basin wildrye

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Blackleg soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Peevywell soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Cleavage soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Blackleg Soil for Various Uses and Practices
Range seeding: Fair—too arid, droughty
Roadfill: Poor—cemented pan
Topsoil: Poor—small stones
Daily cover for landfill: Poor—cemented pan, small stones
Shallow excavations: Severe—cemented pan
Local roads and streets: Moderate—cemented pan, shrink-swell potential, slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Peevywell Soil for Various Uses and Practices
Range seeding: Fair—rooting depth
Roadfill: Poor—cemented pan
Topsoil: Poor—area reclaim
Daily cover for landfill: Poor—cemented pan
Shallow excavations: Severe—cemented pan
Local roads and streets: Severe—low strength, shrink-swell potential
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Moderate—thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Cleavage Soil for Various Uses and Practices
Range seeding: Poor—droughty, small stones
Roadfill: Poor—depth to rock
Topsoil: Poor—depth to rock, small stones
Daily cover for landfill: Poor—depth to rock, small stones
Shallow excavations: Severe—depth to rock
Local roads and streets: Severe—depth to rock
Pond reservoir areas: Severe—depth to rock
Embankments, dikes, and levees: Severe—large stones, thin layer
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Blackleg soil—7s, nonirrigated; Peevywell soil—6s, nonirrigated; Cleavage soil—7s, nonirrigated
Range site: Blackleg soil—025X027N; Peevywell soil—025X017N; Cleavage soil—025X017N; Inclusion 1—025X017N; Inclusion 2—025X003N

3080—Siri Variant-Sumine-Vitale Variant association

Map Unit Setting

Position on landscape: Plateaus

Composition

Major components:
• Siri Variant gravelly loam, 15 to 50 percent slopes (30 percent)
• Sumine extremely stony loam, 30 to 75 percent slopes (30 percent)
• Vitale Variant very cobbly silt loam, 50 to 75 percent slopes (20 percent)
Contrasting inclusions:
• Inclusion 1: Xeric Torriorthents, loamy, mixed, frigid, shallow, 30 to 50 percent slopes (10 percent)
• Inclusion 2: Rubble land (7 percent)
• Inclusion 3: Rock outcrop (3 percent)

Characteristics of the Siri Variant Soil

Classification: Xerollic Calciorthids, loamy-skeletal, carbonatic, frigid
Position on landscape: Side slopes of plateaus
Parent material: Residuum derived from limestone

Slope range: 15 to 50 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Depth: 0 to 9 inches
Texture: Gravelly loam
Structure: Subangular blocky
Consistence: Slightly hard, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 9 to 26 inches
Texture: Very gravelly fine sandy loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Strongly alkaline
Salinity: 0 to 4 mmhos per cm

Depth: 26 to 30 inches
Texture: Weathered bedrock

Depth: 30 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 26 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.0 to 3.7 inches
Water-supplying capacity: 6.0 to 7.5 inches
Runoff: Rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.28; T value—2; wind erodibility group—6
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—high; to concrete—low
Potential for frost action: Moderate

Characteristics of the Sumine Soil

Classification: Aridic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: South-facing side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 30 to 75 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Mountain big sagebrush, bluebunch wheatgrass

Climatic Data

Average annual precipitation: About 12 inches
Average annual air temperature: About 42 degrees F
Frost-free period: About 90 days

Typical Profile

Percent stones and boulders on the surface: 20
Percent cobbles on the surface: 10
Percent pebbles on the surface: 30

Depth: 0 to 6 inches
Texture: Extremely stony loam
Structure: Granular
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 6 to 27 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Hard, firm
Reaction: Neutral

Depth: 27 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 20 to 40 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderate
Available water capacity: 3.0 to 3.9 inches
Water-supplying capacity: 8 to 9.5 inches
Runoff: Rapid
Hydrologic group: C
Erosion factors (surface layer): K value—.24; T value—2; wind erodibility group—8
Hazard of erosion: By water—slight; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Characteristics of the Vitale Variant Soil

Classification: Typic Argixerolls, loamy-skeletal, mixed, frigid
Position on landscape: Adjacent to areas of rubble land on the side slopes of plateaus
Parent material: Residuum and colluvium derived from welded tuff
Slope range: 50 to 75 percent
Elevation: 5,000 to 6,200 feet
Dominant present vegetation: Black sagebrush, bluebunch wheatgrass, Idaho fescue

Climatic Data

Average annual precipitation: About 14 inches
Average annual air temperature: About 43 degrees F
Frost-free period: About 80 days

Typical Profile

Percent stones and boulders on the surface: 10
Percent cobbles on the surface: 20
Percent pebbles on the surface: 30

Depth: 0 to 12 inches
Texture: Very cobbly silt loam
Structure: Subangular blocky
Consistence: Soft, very friable
Reaction: Neutral

Depth: 12 to 43 inches
Texture: Very gravelly clay loam
Structure: Subangular blocky
Consistence: Slightly hard, friable
Reaction: Neutral

Depth: 43 inches
Texture: Unweathered bedrock

Soil and Water Features

Depth to bedrock: 40 to 60 inches
Depth to a seasonal high water table: More than 60 inches
Flooding: Frequency—none
Permeability: Moderately slow
Available water capacity: 3.7 to 4.8 inches
Water-supplying capacity: 9 to 12 inches
Runoff: Very rapid
Hydrologic group: B
Erosion factors (surface layer): K value—.15; T value—3; wind erodibility group—8
Hazard of erosion: By water—high; by wind—slight
Shrink-swell potential: Low
Corrosivity: To steel—moderate; to concrete—low
Potential for frost action: Moderate

Contrasting Inclusions

Inclusion 1
Classification: Xeric Torriorthents, loamy, mixed, frigid, shallow
Position on landscape: Lower side slopes of plateaus
Distinctive present vegetation: Wyoming big sagebrush, Indian ricegrass

Inclusion 2
Position on landscape: Below areas of rock outcrop on side slopes of plateaus
Distinctive present vegetation: None

Inclusion 3
Position on landscape: Upper side slopes of plateaus
Distinctive present vegetation: None

Major Uses

Current uses: Livestock grazing, wildlife habitat
Suitability of the Siri Variant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Sumine soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair
Suitability of the Vitale Variant soil for named elements: Wild herbaceous plants (nonirrigated)—fair; shrubs (nonirrigated)—fair

Suitability and Limitations of the Siri Variant Soil for Various Uses and Practices
Range seeding: Poor—too arid
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—seepage, slope
Embankments, dikes, and levees: Severe—seepage
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Sumine Soil for Various Uses and Practices
Range seeding: Poor—large stones, erodes easily
Roadfill: Poor—depth to rock, slope
Topsoil: Poor—small stones, slope
Daily cover for landfill: Poor—depth to rock, small stones, slope
Shallow excavations: Severe—depth to rock, slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Severe—large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Suitability and Limitations of the Vitale Variant Soil for Various Uses and Practices
Range seeding: Poor—large stones, erodes easily
Roadfill: Poor—slope
Topsoil: Poor—small stones, area reclaim, slope
Daily cover for landfill: Poor—small stones, slope
Shallow excavations: Severe—slope
Local roads and streets: Severe—slope
Pond reservoir areas: Severe—slope
Embankments, dikes, and levees: Moderate—thin layer, large stones
Sand: Improbable source—excess fines
Gravel: Improbable source—excess fines

Interpretive Groups

Capability classification: Siri Variant soil—7e, nonirrigated; Sumine soil—7s, nonirrigated; Vitale Variant soil—7s, nonirrigated

Range site: Siri Variant soil—024X031N; Sumine soil—025X009N; Vitale Variant soil—025X055N; Inclusion 1—025X025N; Inclusion 2—none; Inclusion 3—none

Prime Farmland

In this section, prime farmland is defined and the soils in the survey area that are considered prime farmland are listed.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are those soils best suited to food, seed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils either are used for food or fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage systems, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

The following map units meet the soil requirements for prime farmland when irrigated. On some soils included in the list, measures that overcome a hazard or limitation, such as excess salinity or excess sodium in the root zone, are needed. The location of each map unit is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units." This list does not constitute a recommendation for a particular land use.

080 Loncan Variant loam, 0 to 2 percent slopes
442 Devilsgait-Crooked Creek association

The following map units meet the requirements for prime farmland if they are irrigated and if excess salinity and sodicity in the root zone are reduced during the growing season:

141 Kelk-Kelk, occasionally flooded-Enko association
149 Kelk-Sonoma association
161 Sonoma-Sonoma, rarely flooded association
167 Sonoma-Kelk association
221 Enko-Kelk-Enko, very fine sandy loam association
223 Enko-Kelk-Connel association
224 Enko-Enko, gravelly association

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. Also, the system of land capability classification used by the Natural Resources Conservation Service is explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The goal of good land management is the production of the greatest amount of the most needed crops in a manner that protects and improves the soil resource. The land must be protected according to its needs and used within its capabilities. This goal can be achieved by selecting plants that are well suited to the soil, applying soil management practices that protect the soil, and keeping the soil in good condition.

Different management is needed on diverse kinds of soil. Basic essential practices, however, apply to all cultivated soils. Aspects of management are described in the following paragraphs.

Conservation cropping systems.—A conservation cropping system consists of a crop rotation and cultural and management practices. A good conservation cropping system is one in which soil-improving crops and management practices more than offset the effects of soil-depleting crops and practices. Examples of soil-improving practices are crop rotations that include grasses and legumes, the return of crop residue to the soil, proper tillage, applications of fertilizer, and weed and pest control.

Several cropping systems are used in the survey area. A typical one consists about 8 to 10 years of alfalfa, 2 years of small grain, and then alfalfa with a protective cover crop of oats. The residue from small grain is returned to the soil, and minimum tillage is used.

Erosion control.—Erosion control prevents the excessive wearing away of the land surface by wind, running water, and other geological agents. The surface layer should be protected because it contains most of the organic matter in the soil and generally is more fertile than the subsoil. Erosion can be controlled by growing cover crops, which protect the surface during

windy or stormy periods; by tilling in spring and seeding immediately after tilling; and by leveling the land to the proper grade and applying water at the proper rate.

Addition of plant nutrients.—Most of the irrigated soils used for crops in the survey area respond well to applications of liquid or solid fertilizer. The specific fertilizer needed depends on the kind of crop grown and the nutrient level of the soil. Applying fertilizer that contains nitrogen and phosphorus increases the production of small grain and aids in establishing alfalfa. After it is established, alfalfa benefits from applications of phosphorus every 2 years for the life of the stand, except where the soil contains enough available phosphorus.

Irrigation water management.—Proper irrigation water management is the application of irrigation water at rates and in amounts adequate to ensure high crop yields and to minimize soil and water losses. The water should be applied according to the needs of the crop and the characteristics of the soil.

Sufficient delivery of water to farms is the first step in supplying the moisture needed for growing crops. A good irrigation distribution system is one that has the capacity to meet the needs of the crops to be irrigated, that is located and controlled so that seepage and erosion losses are minimal, and that carries the required flow safely. Control structures are needed to facilitate the proper distribution of water. The design of an irrigation system is governed by the method of irrigation to be used, the amount of land smoothing or leveling needed, and the expected efficiency in applying water.

To apply water efficiently, a farmer needs to know the available water capacity of the soil, the rate that water enters and moves through the soil, and the amount of water required by the crop. Most crops should be irrigated when 40 to 50 percent of the available moisture in the top half of the root zone has been depleted. A soil check can be made 2 days after irrigation to determine whether the desired amount of moisture has been added.

Managment of saline soils.—Like most soils in arid and subarid regions, the soils in this survey area contain at least small quantities of soluble salts and sodium. Because the amount of annual rainfall is low and the rate of evaporation is high, percolating rainfall is insufficient to leach salts out of the root zone. In some soils high concentrations of salts and sodium limit or prevent the growth of crops. In addition, many low areas receive salty water from runoff or seepage. Surface evaporation of this water generally results in an increase in the amount of soluble salts on or in the soils. In some areas that have a high water table, water rises in the soil by capillary action and carries dissolved salts with it. The soluble salts are readily dissolved in water and can be moved to any part of the soil profile.

A soil that contains excessive amounts of soluble salts is called a saline soil. One that contains excessive amounts of absorbed sodium is called a sodic soil. A soil that contains excessive amounts of both soluble salts and sodium is called a saline-sodic soil.

Saline phases of several of the soils in the survey area have been mapped. The map unit name does not indicate the degree to which these soils are affected, nor does it indicate that they contain both salt and sodium. This information is given in the map unit description. Three saline and sodic classes are mapped as soil phases. These classes are:

1. Soils that are free of excess salts and sodium and contain less than 0.15 percent salts. The conductivity of the saturation extract is less than 4 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is less than 15 percent.

2. Slightly saline-sodic soils in which the content of salts is 0.15 to 0.35 percent or the conductivity of the saturation extract is 4 to 8 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is 15 to 40 percent in the soils of moderately coarse, medium, moderately fine, or fine texture.

3. Strongly saline-sodic soils in which the content of salts is more than 0.65 percent or the conductivity of the saturation extract is more than 16 millimhos per centimeter at 25 degrees C. The content of exchangeable sodium is more than 40 percent in the soils of moderately coarse, medium, moderately fine, or fine texture.

Although a distinct gap occurs between the second class and the third, an intermediate, or moderate, class is not needed in this survey area because a very small percentage of the samples analyzed was moderately saline.

Some soils mapped as slightly saline-sodic are free of excess salts and sodium in the upper 4 or 5 inches, but they have slight or moderate concentrations directly below the plow layer. Several soils mapped as strongly saline-sodic are only slightly affected in the plow layer.

Soils differ in the kinds of salt they contain and in the practices needed for improvement. For this reason, each soil requires individual treatment; however, some general guidelines can be given. A good supply of irrigation water and an adequate drainage system are needed to reclaim any saline-sodic soil. The most common method of applying water for reclamation in this survey area is to level the areas to a uniform grade and then to flood the areas between border dikes. If drainage is adequate and large amounts of water are applied, this method is effective in leaching the soluble salts out of the root zone.

Proper pasture management.—Proper pasture management is grazing pasture at a rate that maintains high-quality grasses and legumes. Properly adjusting the stocking rates or the season of use can maximize the growth and survival of plants.

A common method of pasture management is to rotate grazing among several pastures. This method allows adequate regrowth in each pasture. Livestock should be excluded when the pastures are wet. Grazing when the pastures are wet results in compaction of the soil, a decrease in the rate of water intake, and deterioration of soil structure. Proper irrigation water management and a proper drainage system are needed. Yields can be increased through applications of commercial fertilizers and barnyard manure. Weeds generally can be controlled by mowing or chemical treatment. Droppings of manure can be spread with a drag each spring.

Hayland management.—Proper hayland management prolongs the life of desirable forage plants, maintains or improves the quality and quantity of forage, helps to control erosion, and limits water losses. This management includes the establishment and renovation of alfalfa hayfields with long-term stands of suitable plants.

An important method of increasing crop yields is the selection of suitable plants. Selecting the plants that can withstand climatic extremes and produce high yields during a relatively short growing season helps to renovate and establish hayland. High-quality, certified seed should be planted. Inoculated legume seeds should be selected.

Land leveling, grading, shaping, and subsoiling should be completed before seedbed preparation. Growing an annual crop the year before a forage crop is reestablished helps to control weeds and erosion. Seed can be drilled directly into the stubble of the annual crop. Irrigation is needed during seedbed preparation.

Companion crops may be needed if wind erosion is a hazard. Disease can be controlled by the selection of resistant plants, proper crop rotations, and proper irrigation management.

Applications of fertilizer are essential to ensure that plant growth is not limited. The amount of fertilizer needed depends on the properties of the soil and the crops grown.

The frequency of irrigation and the amount of irrigation water to be applied in areas of hayland depend on the available water capacity of the soil and the rate of evapotranspiration. Subirrigation requires special management to control the level of the water table and to prevent the accumulation of excess soluble salts.

Forage production in areas of native meadow hayland varies because of excessive water in spring and a shortage of water in summer. When forage quality is low, practices that improve production should include better water management, applications of fertilizer, and the introduction of better quality plant species.

Drainage.—The soils on the flood plains along perennial and intermittent streams have a seasonal high water table from December to July. The water table begins to rise when the rate of evapotranspiration decreases in fall, and it is at a maximum height in spring because of runoff.

Soils that are flooded naturally or by flood irrigation support a cover of native meadow plants that are used for hay and pasture. Soils that are not flooded may accumulate salts and support salt-tolerant shrubs and some grasses.

On most of the soils on wet flood plains, an adequate supply of water for irrigation is not available. In a few areas the supply is adequate because of ground-water resources. Additional ground water is not likely to be available for development in the immediate future.

The soils on wet flood plains, particularly those supporting meadow vegetation, are an important wetland resource. They should be managed so that the present soil, moisture, and vegetative conditions are maintained. A surface drainage system can be used to distribute floodwater in some areas. An extensive subsurface drainage system should not be installed because it can destroy the wetland resource and reduce productivity.

Yields per Acre

The management needed to obtain high yields of various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

In areas used for irrigated crops, the irrigation system should be adapted to the soils and to the crops grown, good-quality irrigation water should be uniformly applied as needed, and tillage should be kept to a minimum.

Yields reflect the productive capacity of each soil for each principal crop. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for specific crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Arabic numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class number, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Rangeland

Roy Kaiser, range conservationist, Natural Resources Conservation Service, helped prepare this section.

About 55 percent of the survey area is rangeland. Most rangeland is used for livestock grazing or mining. Ranches are mostly cow-calf or cow-calf-sheep operations. They range from a few hundred to several thousand acres in size. The Bureau of Land Management administers most of the rangeland, including checkerboard land across the south-central part of the survey area. Urban development is encroaching onto the rangeland in the Elko, Carlin, and Lamoille areas.

The native vegetation in the survey area has changed because of heavy grazing, fires, mining, and gas, oil, and geothermal exploration. Desirable vegetation has been reduced in abundance, and undesirable vegetation has increased. In some areas cheatgrass and other invader plants have increased in abundance and dominate the plant community. Overgrazing, fire suppression, and environmental changes have allowed singleleaf pinyon and Utah juniper to invade once productive rangeland. The rangeland once produced 800 to 1,000 pounds of air-dry vegetation per acre per year before the pinyon-juniper invasion. Now, they produce 100 to 300 pounds per acre in normal years.

Prior to regulated use of Federal lands, vast numbers of livestock roamed the range with little or no management of the forage. As a result, forage, soil, and water resources have deteriorated. Federal range use regulations were established to adjust the numbers of livestock to the carrying capacity of the range and to the common base of the private lands. In many areas conditions have greatly improved, but the amount of available forage is still short of the potential production.

The rangeland in this survey area provides watershed values, opportunities for recreation, and wildlife habitat. It makes up a majority of the watershed acreage in the Upper Humboldt drainage basin and

provides summer and winter range for deer and nesting and strutting grounds for sage grouse.

The tables in the section "Rangeland Plants and Woodland Understory" show the rangeland plants and woodland understory for each major soil and contrasting inclusion in the detailed soil map units, the common plant name and scientific symbol for the characteristic vegetation, the average percent composition for each species in the potential plant community, the range site number, and the potential annual production of vegetation in favorable, normal, and unfavorable years. The characteristic vegetation, which consists of the grasses, forbs, and shrubs that make up most of the potential plant community, is listed by common name. The expected percentage of the potential annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and the grazing season.

Potential production is the amount of vegetation that can be expected to grow annually on well managed rangeland that supports the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the potential natural plant community on a particular range site. The more closely the existing community resembles the potential community, the better the range condition. Range condition is an ecological rating only. It does not have a specific meaning that pertains to the present plant community in a given use.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for the site. Such management generally results in the optimum production of vegetation, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Grazing management is the key to maintenance of the rangeland community. Proper grazing use maintains enough plant cover to protect the soil and maintain or improve the quality and quantity of desirable vegetation. This management applies to all grazing animals, including livestock, game, and wild horses.

Planned grazing systems should be designed to meet both the needs of the individual operating unit and management objectives. They are systems in which two or more grazing units are alternately rested in a planned sequence over a period of years. The rest period should extend at least through the growing season of the key plants. The important feature is that the same unit is not grazed at the same time year after year.

To achieve a uniform distribution of grazing, additional range improvement practices may be needed. Livestock watering developments, fences, salting facilities, livestock trails, range seeding, and wildlife plantings are alternative practices that can improve distribution patterns.

Brush management is needed when the less desirable woody species increase to amounts in excess of what is natural for the site. This practice can be beneficial to both livestock and wildlife and can help to minimize sedimentation and improve the quality of the watershed. Chemicals are effective in brush management. When the chemicals are applied according to the manufacturer's recommendations and at the proper time, good results can be expected. There must be adequate desirable plant species in the understory to respond to the treatment.

Prescribed burning is an alternative method of brush management. It is not so selective as chemical treatment. It is relatively inexpensive but requires precautions. A good understory is needed to provide fuel, and proper timing of the burning is critical.

Mechanical treatment practices, such as plowing, chaining, and beating, are effective in controlling brush on certain sites, but the cost is high.

Range seeding should be applied when the range has deteriorated to a point where the desired plant species have disappeared or as critical-area treatment following a wildfire. Evaluating the sites to be seeded on the basis of the soil, climate, topography, and planned use can determine the species that are suitable and the seeding techniques that can be used.

Even in areas where suitable species are selected and improved seeding techniques are applied, the results of seeding are strongly influenced by rainfall. Precipitation fluctuates significantly from one year to the next even in the higher rainfall zones. The success of

range seeding depends on the amount of moisture available during the growing season.

Each soil is rated in the detailed map units for range seeding. These ratings are intended to suggest the number of successful seeding establishments that might be expected during a given period of years. The number of plant species that are suited to the soil decreases with decreasing soil suitability. The ratings are not intended to be a measure of the total annual yield. Productivity is dependent on the interaction of most of the soil properties and characteristics that are considered. The criteria used to develop the ratings are listed in the Appendix.

In areas where critical-area treatment is needed, providing a plant cover that helps to prevent accelerated erosion may be advantageous on soils that are poorly suited to range seeding. Successful seeding of depleted areas of rangeland in Nevada reduces the runoff rate and the hazard of erosion.

The soils that are best suited to range seeding are those that are moderately deep or deeper; receive an adequate amount of moisture and can hold the moisture; are resistant to sheet, rill, and wind erosion; are free of salts and alkali; and have a medium textured surface layer that is relatively free of rock fragments and is resistant to crusting.

In the detailed map unit descriptions, the soils are assigned to various range sites. A range site is a distinctive kind of rangeland that produces a characteristic natural plant community that differs from natural plant communities on other range sites in kind, amount, and proportion of range plants. The relationship between soils and vegetation was ascertained during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, and a seasonal water table also are important.

Woodland Management

Roy Kaiser, range conservationist, Natural Resources Conservation Service, helped prepare this section.

Woodland makes up about 30 percent of this survey area. Elevation of the woodland ranges from 5,500 to 8,000 feet.

The major woodland sites in the survey area are Utah juniper-big sagebrush, Utah juniper-black sagebrush, singleleaf pinyon-Utah juniper-big sagebrush, singleleaf pinyon-Utah juniper-black sagebrush, and singleleaf pinyon-big sagebrush. Aspen-mountain brome, aspen-sedge, and cottonwood-sedge sites make up less than 1 percent of the survey area.

Historically, Utah juniper and singleleaf pinyon have been used for firewood, mine shaft props, and fenceposts. Singleleaf pinyon also can be used as a source of pinyon nuts and Christmas trees. Both singleleaf pinyon and Utah juniper can be used in the manufacture of particle board or specialty products utilizing their distinctive oils and resins. With a pinyon-juniper canopy of 10 to 20 percent and an average diameter of 5 inches, 2 to 6 cords of firewood, 10 to 20 posts 7 feet long, 5 to 10 Christmas trees, and 200 pounds of pinyon nuts can be harvested per acre.

Thinning and improvement cuttings are needed for sustained yields. Harvesting of selected trees for posts and firewood is recommended.

Selective harvesting can provide income and can improve stand quality and yields. Harvesting trees can open the overstory canopy and increase the production of herbaceous understory. With an overstory canopy of 10 to 20 percent, the understory can produce 150 to 500 pounds of air-dry vegetation per acre in normal years.

Pinyon-juniper woodland in this survey area generally is on soils that are very shallow or shallow to soft bedrock, hard limestone bedrock, or a hardpan. The soils are moderately alkaline or strongly alkaline and are highly calcareous. The major limitations to be considered in managing a specific woodland site are the erosion hazard and equipment limitations.

In the detailed map unit descriptions, the site index of the soils in the survey area that are used for woodland is given. This index is the average height, in feet, or the average diameter and basal area in stands of singleleaf pinyon and Utah juniper, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands.

Woodland Understory Vegetation

Understory vegetation consists of grasses, forbs, shrubs, and other plants. If well managed, some woodland can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

The potential for producing understory vegetation is given for each soil suitable for woodland in the tables in the section "Rangeland Plants and Woodland Understory." An *X* in the tables indicates that the

named plant occurs in the understory when the canopy density is most nearly typical of woodland in which the production of wood crops is highest.

The potential production of understory vegetation includes the herbaceous plants and the leaves, twigs, and fruit of woody plants up to a height of 4.5 feet. It is expressed in pounds per acre of air-dry vegetation in favorable, normal, and unfavorable years. In a favorable year, soil moisture is above average during the optimum part of the growing season; in a normal year, soil moisture is average; and in an unfavorable year, it is below average.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are planted on a limited basis in this survey area. Any windbreak in the area requires irrigation.

The species adapted to specific soils and climatic conditions should be selected for planting. The trees that are suited to deep, well drained soils include box elder, green ash, American elm, Siberian elm, black locust, Amur maple, Lombardy poplar, idahybrid poplar, Norway spruce, Engelmann spruce, blue spruce, silver maple, Rocky Mountain juniper, Utah juniper, singleleaf pinyon, and Scotch pine. The shrubs that are suited to these soils include silver buffaloberry, Peking cotoneaster, common chokecherry, golden currant, dogwood, Tatarian honeysuckle, lilac, Siberian peashrub, rose species (including cliffrose), skunkbush sumac, willow species, and juniper species (shrub forms).

Slight or moderate saline-sodic conditions may limit plant selection to Siberian elm, cottonwood species, Russian-olive, golden willow, silver buffaloberry, golden currant, Tatarian honeysuckle, and Siberian peashrub.

Drought-resistant species adapted to shallow or coarse textured soils may include Rocky Mountain juniper, Utah juniper, singleleaf pinyon, Russian-olive, fourwing saltbush, Siberian peashrub, skunkbush sumac, cliffrose, and juniper species (shrub forms).

Information about planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Wildlife Habitat

Randy Kelley, range conservationist, Natural Resources Conservation Service, helped prepare this section.

Wildlife is a valuable resource in this survey area. It provides opportunities for such outdoor activities as hunting and fishing.

Wildlife is a product of the soil and, like other crops, responds to good management. The population of adapted wildlife usually is in balance with essential habitat that provides food and cover. The complete habitat elements needed by specific species of wildlife generally require several kinds of soil and a combination of land uses. The dominant land uses in the survey area are livestock grazing, mining, and recreation. Most of the cropland in the survey area is used for alfalfa-grass hay that is fed to livestock in winter. Proper grazing use in the areas of rangeland is needed to maintain a viable wildlife resource.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

The potential of the soils in the survey area for elements of wildlife habitat is indicated in the detailed map unit descriptions. The potential is described as good, fair, poor, or very poor. A rating of *good* indicates that the element is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element. Management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element are very severe and that unsatisfactory results can be expected.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are needlegrass, balsamroot, globemallow, wheatgrass, and bluegrass.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are singleleaf pinyon and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are mountainmahogany, bitterbrush, snowberry, and big sagebrush.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, reed canarygrass, saltgrass, cordgrass, rush, sedge, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

In the following paragraphs the general soil map units in the survey area are grouped into wildlife areas that differ from one another in potential species and environmental factors.

Wildlife area 1 consists of general soil map units 1, 2, and 3. The soils in this area are nearly level or gently sloping and are on flood plains along rivers, streams, and creeks and on the adjacent alluvial flats and fan skirts. This area is suited to a wide variety of wildlife because of the amount of available water, meadow vegetation and scattered patches of willows on the poorly drained soils, and basin big sagebrush and basin wildrye on the better drained soils. Black greasewood is the dominant native plant in areas that are strongly salt and sodium affected. The vegetation in this area has a good amount of structural diversity. The area provides the food, cover, and water necessary to produce a wide variety and a high density of wildlife.

The wildlife species in this area include beaver, muskrat, cottontail, jackrabbit, mule deer, sage grouse, quail, Hungarian partridge, coyote, bobcat, and many species of waterfowl. Some waterfowl nest in this area, but this habitat is used mostly during migration. Nongame species, such as songbirds and small mammals, are abundant. Most of the wildlife is dependent on the meadows for feed. Therefore, management should be directed toward improving or maintaining the meadows. Stands of willow should not be totally removed through treatment to improve the meadows because they provide important cover for a large number of game and nongame species. Proper use of pasture, range, and native hayland is needed to prevent accelerated stream entrenchment and deterioration of the habitat. The rivers and many of the streams and creeks support good recreational fisheries. Fish species include rainbow and brook trout, catfish, and carp.

Wildlife area 2 consists of general soil map units 4, 5, and 8. This area is on fan piedmont remnants, partial ballenas, and some hills. The native vegetation is mainly big sagebrush and an understory of Thurber needlegrass and bluebunch wheatgrass. The grass understory has a higher density on south-facing slopes. Black sagebrush grows on the shallower soils. Stands of Utah juniper are common throughout this area. Much of the Utah juniper is invading onto big sagebrush sites. Because of a shortage of water, the kinds and number of wildlife in this area are relatively few.

The wildlife species in this area include chukar, jackrabbit, coyote, bobcat, badger, and numerous nongame birds and mammals. Mule deer and Hungarian partridge use this area in winter, particularly

where the area is adjacent to wildlife area 1. Juniper stands provide both food and cover for many game and nongame wildlife species. All riparian areas within wildlife area 2 are critically important for wildlife. They should be considered when management is planned. The availability of water is the main concern in managing the wildlife habitat in this area.

Wildlife area 3 consists of general soil map units 6, 7, and 12. This area is on fan piedmont remnants and hills, generally along mountain foot slopes. The native vegetation is big sagebrush and various bunch grasses on the deeper soils and low sagebrush and bunch grasses on shallow soils. South-facing slopes have a relatively higher density of bunch grasses, whereas deep soils in concave areas on north-facing slopes have a relatively higher density of antelope bitterbrush, snowberry, and serviceberry.

The wildlife species in this area include jackrabbit, cottontail, badger, coyote, bobcat, chukar, and Hungarian partridge. The area provides good habitat for sage grouse because the big sagebrush and low sagebrush plant communities are interspersed. This edge habitat has the best mixture of the two plant communities that sage grouse prefer, particularly in areas adjacent to water. Drainageways, seeps, and springs provide some water in this area. The wildlife habitat can be improved by properly locating water impoundments. Brushy areas adjacent to water are important fawning areas for mule deer. The area also provides important early spring range for mule deer.

Wildlife area 4 consists of general soil map units 9, 10, and 11. The soils in this area are on gently sloping to steep hills and fan piedmont remnants. The native vegetation is dominantly big sagebrush, black sagebrush, bluebunch wheatgrass, Thurber needlegrass, and Indian ricegrass. Concave areas, particularly on north-facing slopes, support antelope bitterbrush, snowberry, serviceberry, and Idaho fescue. Stands of Utah juniper are relatively abundant near areas of rock outcrop or very shallow soils.

The wildlife species in this area include jackrabbit, coyote, badger, bobcat, chukar, and many raptors. The area provides winter range for some mule deer. Water is not plentiful in this area. Any water impoundments should be constructed for ease of access by all types of wildlife.

Wildlife area 5 consists of general soil map unit 13. The soils in this area are mainly on gently sloping to moderately steep hills along mountain foot slopes south of the Jarbidge Mountains. The native vegetation is dominantly antelope bitterbrush, big sagebrush, Idaho fescue, and bluebunch wheatgrass.

The wildlife species in this area include cottontail, jackrabbit, coyote, bobcat, numerous nongame birds, small mammals, and mule deer. Parts of this area are important winter range for deer because of the high density of antelope bitterbrush, which provides nutritious forage in winter and early spring. Enough water is available to support a relatively high density of wildlife. Management practices should not result in a decrease in the density of antelope bitterbrush.

Wildlife area 6 consists of general soil map units 14 and 15. It is dominantly on side slopes and in other areas on plateaus. It is north of the main part of the survey area. It is separated from the main part of the survey area by the Jarbidge Mountains. The native vegetation is mostly big sagebrush, low sagebrush, Idaho fescue, and bluebunch wheatgrass. Antelope bitterbrush is prevalent along the side slopes of the major canyons. Quaking aspen stands are on northern exposures, in concave areas, and on the bottom of some canyons and drainageways. Rocky Mountain juniper grows on the bottom and side slopes of canyons.

The wildlife species in this area include cottontail, jackrabbit, badger, bobcat, mountain lion, pronghorn antelope, valley quail, chukar, mourning dove, sage grouse, Hungarian partridge, beaver, many raptors, numerous nongame birds, and small mammals. Some California bighorn sheep have been transplanted along the West Fork of the Bruneau River and along the Jarbidge River. Many mule deer winter along the major canyons. The stands of quaking aspen, Rocky Mountain juniper, and other brush species adjacent to or in riparian areas are important fawning grounds for mule deer and bird habitat. Beaver ponds provide limited habitat for some waterfowl. Recreational fishing in this area is important. Rainbow and brook trout inhabit the rivers and streams. This wildlife area provides enough food, cover, and water to support a high density of wildlife. Consequently, management activities of any kind should always incorporate the needs of wildlife.

Wildlife area 7 consists of general soil map unit 16. This area is on moderately steep and steep mountains. It makes up only 1 percent of the survey area, but it has some important elements of wildlife habitat. The native vegetation is dominantly singleleaf pinyon and Utah juniper and an understory of big sagebrush and black sagebrush. Stands of curlleaf mountainmahogany are locally abundant and are interspersed throughout the stands of pinyon and juniper.

The wildlife species in this area include mule deer, bobcat, coyote, badger, and raptors. The woodland in the area provides a varied habitat for wildlife and furnishes food and cover for many species of birds and small mammals. Water can be the limiting factor determining the relative abundance of wildlife in the area. Constructing water areas helps to provide access

for large and small game species. The total population of small mammals and birds may diminish as the woodland canopy becomes denser and the habitat becomes less diverse. Under these conditions, the species using midstory and understory plants as habitat and as a source of food are likely to become less abundant.

Wildlife area 8 consists of general soil map units 17, 18, and 19. This area is mainly on moderately sloping to steep mountains. The native vegetation is big sagebrush, low sagebrush, antelope bitterbrush, black sagebrush, snowberry, Idaho fescue, bluebunch wheatgrass, and some mountain brome. Scattered stands of quaking aspen are in the wetter concave areas and along drainageways.

The wildlife species in this area include cottontail, jackrabbit, coyote, sage grouse, bobcat, badger, mule deer, and numerous small birds and mammals. This area provides mainly summer habitat for most wildlife species. It is an important area for the rearing of offspring. The density of wildlife is relatively high during the part of the year when offspring are reared. Water from numerous seeps, springs, and drainageways is plentiful. Much of this area is too steep for livestock grazing. The gentler slopes, particularly in and adjacent to riparian areas, tend to be overused. A proper grazing system is important in this area.

Recreation

Restrictive soil features, such as wetness, slope, and texture of the surface layer, are considered when a particular site is evaluated for recreational development. Susceptibility to flooding is considered. The location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines should be considered. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Camp areas, picnic areas, playgrounds, and paths and trails require special attention.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, is firm after rains, and is not dusty when dry. Shaping is required to obtain a uniform grade, and the depth of the soil over bedrock or a hardpan should be enough to allow the necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other purposes should require little or no cutting and filling. The best soils are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They have moderate slopes and have few or no stones or boulders on the surface.

Engineering

The section "Detailed Soil Map Units" provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for roadfill; topsoil; daily cover for landfill; shallow excavations; local roads and streets; pond reservoir areas; embankments, dikes, and levees; sand; gravel; drainage; irrigation; and terraces and diversions. The ratings are based on observed performance of the soils and on estimated data given in the map unit descriptions. Information on other uses can be obtained from the local offices of the Natural Resources Conservation Service.

The information is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the

design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the map unit descriptions, along with the soil maps, the series descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Ratings for Selected Uses

In the detailed map unit descriptions, the soils are rated for various uses and the most limiting features are identified. The ratings are based on observed performance of the soils, on the estimated data given in the map unit descriptions, and on lab test data. In this section the ratings for each use and the limiting features are defined.

Soil interpretations are periodically updated as more is learned about a soil and its behavior under specific uses. New technology can change the relative suitability of a soil for various uses; however, the soil maps remain useful after the soil interpretations originally published with them have become outdated. The Appendix shows the criteria and guidelines that were used to make the interpretations given in the detailed map units. These criteria have been taken directly from the National Soils Handbook *(22)*.

The limitations for shallow excavations, local roads and streets, pond reservoir areas, and embankments, dikes, and levees are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, the potential for frost action, and depth to a high water table affect the traffic-supporting capacity.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable

material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In the detailed map units, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the upper layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

In the detailed map unit descriptions, the soils are rated as a source of roadfill, topsoil, daily cover for landfill, sand, and gravel.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. The soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the upper layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material. The upper layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The upper layer generally has the best workability, more organic matter, and the best potential for plants. Material from the upper layer should be stockpiled for use as the final cover.

The soils are rated as a probable or improbable source of *sand* and *gravel*. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. Only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the series descriptions. Gradation of grain sizes is given in table 5 ("Engineering Index Properties").

For areas that are or can be irrigated, the detailed map unit description gives the restrictive features that affect drainage, irrigation, terraces, and diversions.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and

effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and *diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

The limiting features affecting engineering uses of the soils in this survey area are as follows:

Area reclaim.—The area is difficult to reclaim after the removal of soil for construction and other uses.

Cemented pan.—A cemented pan is too close to the surface for the specified use.

Cutbanks cave.—The walls of excavations tend to cave in or slough.

Deep to water.—The soil is deep to a permanent water table during dry periods.

Depth to rock.—Bedrock is too near the surface for the specified use.

Droughty.—The soil holds too little water for plants during dry periods.

Erodes easily.—The soil is easily eroded by water.

Excess fines.—As a result of an excessive amount of silt and clay, the soil is not a source of gravel or sand to be used for construction purposes.

Excess salts.—The soil has excess water-soluble salts that restrict the growth of most plants.

Excess sodium.—The soil has excess exchangeable sodium that restricts the growth of plants.

Flooding.—The soil is flooded by moving water from stream overflow or runoff.

Frost action.—The moisture in the soil freezes and thaws. Frost action can damage roads, buildings, and other structures.

Hard to pack.—The soil is difficult to compact.

Large stones.—The soil has rock fragments that are 3 inches (7.6 centimeters) in diameter or more.

Low strength.—The soil is not strong enough to support a load.

No water.—Depth to ground water is too great for the specified use.

Percs slowly.—The slow movement of water through the soil adversely affects the specified use.

Piping.—Water moving through the soil forms subsurface tunnels or pipelike cavities.

Ponding.—Water stands on the soil in closed depressions. Unless the soil is artificially drained, the water can be removed only by percolation or evapotranspiration.

Rooting depth.—The soil is shallow to a layer that greatly restricts roots. It has a shallow root zone.

Salty water.—Water is too salty for consumption by livestock.

Seepage.—The movement of water through the soil adversely affects the specified use of the soil.

Shrink-swell potential.—The soil shrinks when dry and swells when wet.

Slope.—The slope is steep enough for special practices to be required to ensure satisfactory performance of the soil for a specified use.

Slow refill.—The restricted permeability of the soil results in the slow filling of ponds.

Small stones.—The soil has rock fragments that are less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil blowing.—The soil is easily eroded by the wind.

Thin layer.—Otherwise suitable material is too thin for the specified use.

Too arid.—The soil is dry most of the time, and vegetation is difficult to establish.

Too clayey.—The soil is slippery and sticky when wet and is slow to dry.

Too sandy.—The soil is soft and loose; it is droughty and low in fertility.

Wetness.—The soil is wet during the period of use.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features are given in table 5 or in the section "Detailed Soil Map Units."

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties given in the map unit descriptions or in table 5 include the range of grain-size distribution, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area are given in table 5. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the system adopted by the American Association of State Highway and Transportation Officials *(1)* and the Unified Soil Classification System *(2)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments 2 millimeters to more than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. Cobbles and stones are larger than 3 inches in diameter, and pebbles are 2 millimeters to 3 inches in diameter. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. The estimates are rounded to the nearest 5 percent.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The

sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in table 5.

Physical and Chemical Properties

Estimates of some characteristics and features that affect soil behavior are given in the detailed map unit descriptions. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in total inches of water for the soil profile. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the map unit descriptions. Salinity affects the suitability of a soil for range seeding and crop production, the stability of the soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodicity is a measure of exchangeable sodium in the soil at saturation. It is expressed as a sodium adsorption ratio (SAR), or the ratio of sodium to calcium plus magnesium. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The sodicity of irrigated soils is affected by the quality of irrigation water and management of the soil. Hence, the sodicity of soils in individual fields can differ greatly from the value given in the map unit descriptions. Sodicity affects the suitability of a soil for range seeding and crop production and the stability of the soil if used as construction material.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on the percentage of silt, very fine sand, sand, and organic matter (up to 4 percent) and on

soil structure and permeability. The estimates are modified by the presence of rock fragments. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. Soils are grouped according to the following distinctions:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

The *hazard of erosion* is an estimate of erosion of the bare soil surface by water and wind. The hazard of erosion by water is determined on the basis of erosion factor K and the slope gradient. The hazard of erosion by wind is determined on the basis of the stability of the soil surface and the climate. The guidelines used in estimating the hazard of erosion are given in the Appendix.

Soil and Water Features

Estimates of various soil and water features are given in the detailed map unit descriptions. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

The frequency and duration of flooding and the time of year when flooding is most likely are given in the map unit descriptions.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *occasional* that it occurs, on the average, no more than once in 2 years; and *frequent* that it occurs, on the average, more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each

soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. The depth to the seasonal high water table is indicated in the map unit descriptions. A water table that is seasonally high for less than 1 month is not indicated. Only saturated zones within a depth of about 6 feet are indicated.

Depth to bedrock is given for the soils identified in the names of the detailed map units. The depth is based on many soil borings and on observations during soil mapping.

Cemented pans are cemented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as thin or thick. A *thin* pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A *thick* pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Corrosivity pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(20)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 6 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Aridisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Orthid (*Orth*, meaning true, plus *id*, from Aridisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Camborthids (*Camb*, meaning change, plus *orthid*, a suborder of the Aridisols).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Xerollic* identifies a subgroup that differs from the Typic great group because it has an aridic moisture regime that borders on a xeric regime. An example is Xerollic Camborthids.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, mesic Xerollic Camborthids.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small, three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(21)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(20)*. Unless otherwise stated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Akler Series

The Akler series consists of shallow, well drained soils that formed in residuum derived from tuff, welded

tuff, conglomerate, and other volcanic or sedimentary rocks. These soils are on hills and mountains. Slopes are 2 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid, shallow Xerollic Haplargids

Typical pedon: Akler loam, 4 to 15 percent slopes, in an area of the Akler-Lerrow association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and fine vesicular pores; 10 percent pebbles; mildly alkaline (pH 7.5); clear wavy boundary. (1 to 6 inches thick)

A2—2 to 6 inches; pale brown (10YR 6/3) clay loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; slightly hard, very friable, sticky and plastic; many very fine and few fine and medium roots; common very fine interstitial pores; few thin clay films on faces of peds along the lower boundary; 5 percent pebbles; neutral (pH 7.3); abrupt smooth boundary. (0 to 4 inches thick)

Bt—6 to 17 inches; brown (10YR 5/3) clay, dark grayish brown (10YR 4/2) moist; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; common fine and very fine roots; common very fine interstitial pores; many stress surfaces along ped faces; 10 percent pebbles; neutral (pH 7.1); clear wavy boundary. (8 to 14 inches thick)

Cr1—17 to 28 inches; light brownish gray (2.5Y 6/2), fractured and weathered tuff, light olive brown (2.5Y 5/4) moist; few very fine roots and few thin clay films along fracture planes; mildly alkaline (pH 7.6); clear wavy boundary. (8 to 15 inches thick)

Cr2—28 inches; white (5Y 8/1), weathered tuff, pale yellow (5Y 7/3) moist.

Type location: Elko County, Nevada; about 8 miles southeast of Taylor Canyon, about 600 feet north and 550 feet west of the southeast corner of sec. 24, T. 39 N., R. 53 E.; north latitude of 41 degrees, 15 minutes, 02 seconds; west longitude of 115 degrees, 56 minutes, 54 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Depth to paralithic contact: 14 to 20 inches

Reaction: Neutral or mildly alkaline

Control section: Clay content—50 to 60 percent; content of rock fragments—0 to 15 percent, mainly pebbles, but some pedons are 15 to 35 percent pebbles and some pedons near rock outcrops have cobbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—very thin to thick platy or fine or medium subangular blocky

Bt horizon:
Hue—2.5Y or 10YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4

Cr horizon:
Clay films—common along fracture planes in the upper part

Alburz Series

The Alburz series consists of very deep, poorly drained soils that formed in alluvium derived from mixed rock sources with a component of loess and volcanic ash. These soils are along narrow drainageways of axial stream flood plains and inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 45 degrees F.

Taxonomic class: Sandy-skeletal, mixed, frigid Fluvaquentic Haplaquolls

Typical pedon: Alburz loam, 0 to 2 percent slopes, in an area of the Alburz-Welch association:

A1—0 to 7 inches; grayish brown (10YR 5/2) loam, very dark gray (10YR 3/1) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary. (3 to 10 inches thick)

A2—7 to 13 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; few fine distinct brown (7.5YR 4/4 moist) mottles; weak fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine discontinuous random interstitial pores; 15 percent pebbles; neutral (pH 7.0); clear smooth boundary. (4 to 10 inches thick)

AC—13 to 20 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; few fine distinct brown (7.5YR 4/4 moist) mottles; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; many very fine discontinuous random interstitial pores; 25 percent

pebbles; neutral (pH 7.2); clear wavy boundary. (0 to 8 inches thick)

2C1—20 to 30 inches; pale brown (10YR 6/3) extremely gravelly loamy coarse sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 60 percent pebbles and 10 percent cobbles; neutral (pH 7.1); gradual wavy boundary. (5 to 30 inches thick)

2C2—30 to 60 inches; pale brown (10YR 6/3) extremely gravelly coarse sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 60 percent pebbles and 20 percent cobbles; neutral (pH 7.3).

Type location: Elko County, Nevada; about 10 miles north of Elko, about 1,500 feet east and 450 feet south of the northwest corner of sec. 2, T. 35 N., R. 54 E.; north latitude of 40 degrees, 57 minutes, 23 seconds; west longitude of 115 degrees, 52 minutes, 09 seconds

Range in Characteristics

Soil moisture: Dry in midsummer and early fall; moist in late fall, in winter, in spring, and in early summer; an apparent seasonal high water table between depths of 12 and 18 inches for at least 1 month during most years, mainly from winter to early summer

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 13 to 20 inches

Depth to the 2C horizon: 13 to 26 inches

Control section: Texture—stratified gravelly coarse sandy loam to gravelly loam in the upper part and stratified extremely gravelly coarse sand to extremely gravelly loamy coarse sand in the lower part; clay content—averages 0 to 10 percent; content of rock fragments—50 to 80 percent, mainly pebbles, but cobbles are common in the lower part

Other features: The content of cobbles typically increases with increasing depth.

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3 dry, 1 or 2 moist
- Structure—weak or moderate subangular blocky or granular
- Reaction—neutral or mildly alkaline

AC horizon (if it occurs):
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Texture—stratified gravelly loam to gravelly coarse sandy loam
- Clay content—5 to 15 percent
- Content of rock fragments—15 to 35 percent, mainly pebbles

2C horizon:
- Value—5 to 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Texture—stratified extremely gravelly coarse sand to extremely gravelly loamy coarse sand
- Clay content—0 to 5 percent
- Content of rock fragments—60 to 85 percent, mainly pebbles
- Structure—massive or single grain

Alburz Variant

The Alburz Variant consists of very deep, very poorly drained soils that formed in alluvium derived from mixed rock sources. These soils are on flood plains along streams. Slopes are 0 to 4 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Sandy-skeletal, mixed, frigid Typic Haplaquolls

Typical pedon: Alburz Variant loam, 0 to 4 percent slopes, in an area of the Alburz-Alburz Variant association:

A—0 to 12 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; strong fine granular structure; slightly hard, very friable, nonsticky and nonplastic; many fine and common medium and coarse roots; common very fine and fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (8 to 13 inches thick)

AC—12 to 20 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; few fine distinct yellowish brown (10YR 5/4 moist) mottles; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and few medium roots; common very fine and fine and few medium tubular pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (4 to 12 inches thick)

2C—20 to 60 inches; pale brown (10YR 6/3) very cobbly sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common fine roots in the upper 10 inches; many fine interstitial pores; 25 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral (pH 7.2). (19 to 45 inches thick)

Type location: Elko County, Nevada; about 23 miles southeast of Elko, about 50 feet east and 1,500 feet north of the southwest corner of sec. 29, T. 31 N., R. 57 E.; north latitude of 40 degrees, 32 minutes,

17 seconds; west longitude of 115 degrees, 35 minutes, 05 seconds

Range in Characteristics

Soil moisture: A water table between the surface and a depth of 1.5 feet from February to June during most years

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 15 to 20 inches

Control section: Texture—gravelly sandy loam or gravelly coarse sandy loam in the upper part and very cobbly sand or extremely cobbly sand in the lower part; clay content—2 to 8 percent; content of rock fragments—35 to 65 percent

A horizon:
Value—4 or 5 dry, 2 or 3 moist

AC horizon:
Value—4 or 5 dry, 2 or 3 moist
Texture—gravelly sandy loam or gravelly coarse sandy loam
Content of rock fragments—15 to 35 percent, mainly pebbles
Clay content—10 to 18 percent

2C horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Texture—very cobbly or extremely cobbly sand
Content of rock fragments—averages 50 to 85 percent (25 to 40 percent pebbles, 20 to 30 percent cobbles, and 5 to 15 percent stones)
Clay content—0 to 5 percent

These soils are a variant of the Alburz series because of a regular decrease in content of organic matter. The Alburz series has an irregular decrease in content of organic matter.

Arcia Series

The Arcia series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from welded tuff and rhyolite. These soils are on the side slopes of hills and mountains. Slopes are 15 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Pachic Argixerolls

Typical pedon: Arcia gravelly loam, 15 to 50 percent slopes, in an area of the Arcia-Tusel-Hackwood association:

A1—0 to 10 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; strong fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many fine interstitial pores; 20 percent pebbles; neutral (pH 7.0); clear wavy boundary. (2 to 12 inches thick)

A2—10 to 14 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, sticky and plastic; many very fine and fine roots; many fine interstitial pores; 25 percent pebbles; neutral (pH 7.0); clear wavy boundary. (2 to 8 inches thick)

Bt1—14 to 21 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, sticky and plastic; common fine roots; many fine interstitial and tubular pores; common distinct clay films on faces of peds and lining pores; 30 percent pebbles; neutral (pH 7.0); clear wavy boundary. (5 to 10 inches thick)

Bt2—21 to 34 inches; pale brown (10YR 6/3) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure; hard, firm, very sticky and very plastic; common fine roots; few fine tubular pores; continuous prominent clay films on faces of peds and lining pores; 5 percent pebbles; neutral (pH 7.0); clear wavy boundary. (6 to 20 inches thick)

Bt3—34 to 39 inches; pale brown (10YR 6/3) very cobbly clay, dark yellowish brown (10YR 3/4) moist; strong fine angular blocky structure; hard, firm, sticky and plastic; common fine roots; few fine tubular pores; continuous prominent clay films on faces of peds and lining pores; 40 percent cobbles; neutral (pH 7.2); abrupt smooth boundary. (0 to 8 inches thick)

2R—39 inches; fractured, welded tuff.

Type location: Elko County, Nevada; about 18 miles west of Jiggs, along the south side of a road, 700 feet east and 2,200 feet south of NW¼ sec. 25, T. 28 N., R. 53 E.; north latitude of 40 degrees, 16 minutes, 52 seconds; west longitude of 115 degrees, 56 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 20 to 30 inches, including the upper part of the argillic horizon

Thickness of the solum and depth to bedrock: 30 to 40 inches

Control section: Clay content—averages 35 to 50

percent; content of rock fragments—averages 5 to 20 percent, mainly pebbles and some cobbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3

Bt1 horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3
Texture—clay loam or gravelly clay loam
Clay content—30 to 40 percent
Content of rock fragments—0 to 30 percent, mainly pebbles

Bt2 and Bt3 horizons:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4, lower chroma typically in the Bt2 horizon
Texture—clay, gravelly clay, cobbly clay; very cobbly clay that is 35 to 50 percent rock fragments in most pedons directly above the lithic contact
Clay content—40 to 60 percent
Content of rock fragments—averages 5 to 35 percent, mainly pebbles and cobbles

Betra Series

The Betra series consists of well drained soils that are moderately deep over a duripan. These soils formed in alluvium derived dominantly from granitic rocks and a component of loess. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Abruptic Aridic Durixerolls

Typical pedon: Betra cobbly loam, 2 to 8 percent slopes, in an area of the Betra-McIvey-Heechee association:

A1—0 to 2 inches; grayish brown (10YR 5/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine and common fine tubular pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.2); abrupt smooth boundary. (2 to 5 inches thick)

A2—2 to 5 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure parting to strong very fine subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine interstitial and tubular pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary. (2 to 5 inches thick)

AB—5 to 9 inches; brown (10YR 5/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; strong medium angular blocky structure; hard, firm, sticky and plastic; common very fine roots; common very fine interstitial pores; 40 percent pebbles and 10 percent cobbles; common thin clay films on faces of peds and lining pores; neutral (pH 7.2); abrupt wavy boundary. (0 to 5 inches thick)

2Bt1—9 to 14 inches; pale brown (10YR 6/3) very gravelly clay, brown (10YR 4/3) moist; strong medium angular blocky structure; extremely hard, extremely firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine interstitial pores; 45 percent pebbles, 10 percent cobbles, and 2 percent stones; many stress surfaces and many thick clay films lining pores; common medium dark brown (10YR 3/3) organic stains on faces of peds; neutral (pH 7.2); clear wavy boundary. (4 to 15 inches thick)

2Bt2—14 to 21 inches; pale brown (10YR 6/3) very gravelly clay, brown (10YR 4/3) moist; strong fine angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots between peds; common very fine interstitial pores; 45 percent pebbles, 5 percent cobbles, and 5 percent stones; many stress surfaces and many prominent clay films lining pores; common medium dark brown (10YR 3/3) organic stains on faces of peds; neutral (pH 7.2); abrupt wavy boundary. (0 to 10 inches thick)

2Bqm—21 to 42 inches; strongly cemented duripan with thin discontinuous silica laminae at the upper boundary and on rock fragments.

Type location: Elko County, Nevada; about 4 miles northeast of Lee, about 1,800 feet east and 1,800 feet south of the northwest corner of sec. 33, T. 32 N., R. 57 E.; north latitude of 40 degrees, 36 minutes, 52 seconds; west longitude of 115 degrees, 33 minutes, 33 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring
Soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 7 to 12 inches
Depth to a duripan: 20 to 30 inches

A horizon:
Value—4 or 5 dry
Chroma—2 or 3

Structure—thin platy or fine or medium subangular blocky

AB horizon (if it occurs):
Value—2 or 3
Texture—gravelly or very gravelly clay loam
Clay content—27 to 30 percent
Content of rock fragments—20 to 40 percent pebbles and 0 to 10 percent cobbles
Structure—angular or subangular blocky

2Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4
Texture—very gravelly or very cobbly clay
Clay content—50 to 60 percent
Content of rock fragments—35 to 60 percent, mainly pebbles and cobbles
Structure—fine or medium angular blocky or prismatic

2Bqm horizon:
Cementation—strong continuous silica cementation in duripan; thin discontinuous silica laminae at the upper boundary and on rock fragments
Content of rock fragments—averages more than 70 percent, mainly cobbles and stones

Bilbo Series

The Bilbo series consists of very deep, well drained soils that formed mainly in alluvium derived from mixed rock sources and in some areas in colluvium derived from shale, sandstone, and conglomerate. These soils are on the side slopes of fan piedmont remnants, partial ballenas, hills, and some inset fan remnants. Slopes are 2 to 75 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids

Typical pedon: Bilbo gravelly loam, 30 to 50 percent slopes, in an area of the Bilbo-Gance-Tustell association:

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular pores; 20 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary. (2 to 4 inches thick)

A2—2 to 4 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine vesicular and few very fine tubular pores; 15 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 4 inches thick)

Bt1—4 to 8 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and plastic; common very fine and few fine and coarse roots; common very fine tubular pores; few thin clay films on faces of peds; 35 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (0 to 12 inches thick)

Bt2—8 to 16 inches; pale brown (10YR 6/3) very gravelly clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium and coarse subangular blocky; hard, firm, very sticky and very plastic; few very fine and medium roots; common very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 40 percent pebbles; neutral (pH 7.0); clear wavy boundary. (6 to 13 inches thick)

Bt3—16 to 22 inches; light yellowish brown (10YR 6/4) very gravelly sandy clay, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular and few very fine interstitial pores; common thin clay films on faces of peds, lining pores, and bridging sand grains; thin coatings of carbonate on the underside of pebbles; 40 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (4 to 13 inches thick)

2Bk—22 to 50 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine interstitial pores; many moderately thick lime coatings on pebbles; 75 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (24 to 30 inches thick)

2Bqk—50 to 60 inches; white (10YR 8/2) extremely gravelly loamy sand, pale brown (10YR 6/3) moist; massive and single grain; slightly hard, very friable, loose, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; many moderately thick lime coatings on pebbles; 75 percent pebbles; violently effervescent; weak discontinuous silica cementation; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 32 miles north of Elko, about 1,300 feet south and 2,100 feet west of the northeast corner of sec. 18, T. 38 N., R.

58 E.; north latitude of 41 degrees, 11 minutes, 11 seconds; west longitude of 115 degrees, 28 minutes, 34 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring
Soil temperature: 47 to 51 degrees F
Combined thickness of the A and Bt horizons: 20 to 40 inches
Depth to carbonates: 20 to 40 inches
Depth to silica cementation: 40 to at least 60 inches
Reaction: Neutral to moderately alkaline, becoming more alkaline with increasing depth
Control section: Clay content—35 to 50 percent; content of rock fragments—35 to 60 percent, mainly pebbles but as much as 15 percent cobbles in some pedons

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—thin to thick platy or weak or moderate very fine to medium subangular blocky
Reaction—neutral or mildly alkaline

Bt horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—very gravelly clay, very gravelly sandy clay, or very gravelly clay loam
Structure—weak or moderate prismatic or moderate or strong subangular or angular blocky
Reaction—neutral or mildly alkaline

2Bk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4
Texture—extremely gravelly loamy sand or very gravelly sandy loam
Content of rock fragments—35 to 75 percent, mainly pebbles
Reaction—mildly alkaline or moderately alkaline
Other features—40 to 50 percent discontinuous silica cementation in the lower part

Bioya Series

The Bioya series consists of well drained soils that are moderately deep to an indurated pan. These soils formed in loess over alluvium derived from mixed rock sources. The soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Xerollic Durorthids

Typical pedon: Bioya loam, 2 to 8 percent slopes, in an area of the Hunnton-Wieland-Bioya association:

A1—0 to 4 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common fine interstitial pores; neutral (pH 7.2); clear smooth boundary. (3 to 7 inches thick)

A2—4 to 14 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and medium roots; many fine and few medium tubular pores; mildly alkaline (pH 7.4); clear smooth boundary. (2 to 10 inches thick)

Bqk—14 to 27 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; many very fine and few medium roots; many very fine and common fine tubular pores; weak discontinuous silica cementation; common fine lime filaments; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (10 to 23 inches thick)

Bqkm—27 to 41 inches; very pale brown (10YR 7/3), indurated duripan with common fine lime filaments throughout; brown (10YR 5/3) moist; massive; extremely hard and brittle; few very fine roots in fractures; continuous thin (1 to 3 millimeters) laminar cap and thin (1 millimeter) discontinuous bands of silica; slightly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (14 to 22 inches thick)

Ck—41 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, nonsticky and nonplastic; few very fine roots; many very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.3).

Type location: Elko County, Nevada; about 6 miles east of Elko; about 1,900 feet north and 50 feet east of the southwest corner of sec. 14, T. 34 N., R. 56 E.; north latitude of 40 degrees, 49 minutes, 19 seconds; west longitude of 115 degrees, 52 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring
Soil temperature: 47 to 52 degrees F
Depth to the Bqk horizon: 8 to 19 inches
Depth to an indurated duripan: 20 to 40 inches

Control section: Clay content—18 to 27 percent; reaction—neutral to moderately alkaline, becoming more alkaline with increasing depth
Other features: Some pedons have a thin Bw horizon; some pedons have a Bq horizon that has no carbonates and has value of 8 dry.

A horizon:
Value—5 or 6 dry, 3 to 5 moist; more than 5.5 dry and 3.5 moist where the upper 7 inches is mixed
Chroma—2 to 4
Structure—weak to strong very thin to thick platy; fine to coarse subangular blocky in the lower part in some pedons
Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
Value—6 to 7 dry, 4 to 6 moist
Chroma—3 to 6
Texture—silt loam or loam
Structure—subangular blocky or massive
Reaction—mildly alkaline to very strongly alkaline
Other features—20 to 50 percent durinodes or weak discontinuous silica cementation

Bqkm horizon:
Structure—thick or very thick platy or massive

Blackleg Series

The Blackleg series consists of well drained soils that are moderately deep to a duripan. These soils formed in alluvium and colluvium derived from welded tuff and argillite. The soils are on the side slopes of plateaus and hills. Slopes are 4 to 15 percent. The mean annual precipitation is about 15 inches, and the mean annual temperature is about 41 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Durixerolls

Typical pedon: Blackleg gravelly loam, 4 to 15 percent slopes, very stony, in an area of the Blackleg-Peevywell-Cleavage association:

A—0 to 4 inches; brown (7.5YR 5/2) gravelly loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure parting to weak thin platy; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; many very fine and fine vesicular and tubular pores; 15 percent pebbles; neutral (pH 7.0); clear wavy boundary. (1 to 7 inches thick)

Bt1—4 to 9 inches; brown (7.5YR 5/2) very gravelly clay loam, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; common very fine to medium roots; common very fine and fine tubular pores; few thin clay skins on faces of peds; 35 percent pebbles; neutral (pH 6.8); gradual wavy boundary. (3 to 15 inches thick)

Bt2—9 to 13 inches; brown (7.5YR 5/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate very fine angular blocky structure; hard, friable, sticky and plastic; common very fine and few medium and fine roots; few fine tubular pores; many moderately thick clay skins on faces of peds and lining pores; 55 percent pebbles; neutral (pH 6.9); gradual wavy boundary. (0 to 15 inches thick)

Bt3—13 to 27 inches; yellowish brown (10YR 5/4) extremely gravelly clay loam, dark brown (7.5YR 3/4) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and few medium and fine roots; few very fine tubular pores; many stress surfaces and many thick clay skins lining pores; 60 percent pebbles; mildly alkaline (pH 7.5); clear wavy boundary. (5 to 14 inches thick)

Bqm—27 to 40 inches; very pale brown (10YR 7/3), indurated duripan, pale brown (10YR 6/3) moist; massive; extremely hard, brittle.

Type location: Elko County, Nevada; about 5 miles northwest of Rowland, about 500 feet south and 900 feet east of the northwest corner of sec. 3, T. 47 N., R. 55 E.; north latitude of 41 degrees, 59 minutes, 45 seconds; west longitude of 115 degrees, 45 minutes, 40 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring
Thickness of the mollic epipedon: 7 to 16 inches, including the upper part of the Bt horizon
Depth to a duripan: 20 to 40 inches
Control section: Clay content—35 to 50 percent; content of rock fragments—averages 35 to 75 percent

A horizon:
Hue—7.5YR or 10YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—granular or subangular blocky parting to platy
Reaction—slightly acid or neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4
Content of rock fragments—averages 35 to 75 percent, mainly pebbles and cobbles
Clay content—35 to 50 percent

Texture—cobbly clay, very cobbly clay loam, very cobbly clay, very gravelly clay loam, extremely gravelly clay loam, or extremely cobbly clay
Reaction—slightly acid to mildly alkaline

Bqm horizon:
Hue—10YR or 7.5YR
Value—4 to 8
Chroma—2 to 6
Effervescence—noneffervescent to strongly effervescent

Bloor Series

The Bloor series consists of very deep, moderately well drained soils that formed in alluvium derived from mixed rock sources and a component of loess. These soils are on fan skirts, axial stream flood plains, and alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 49 degrees F.

Taxonomic class: Fine-silty, mixed, mesic Durixerollic Natrargids

Typical pedon: Bloor silt loam, 0 to 2 percent slopes, in an area of the Hunnton-Wieland-Bloor association:

A—0 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate very thin platy; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine vesicular pores; moderately alkaline (pH 8.4); clear wavy boundary. (2 to 8 inches thick)

E—5 to 8 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots and pockets of many very fine roots; many very fine vesicular and few very fine tubular pores; moderately alkaline (pH 8.4); abrupt wavy boundary. (0 to 3 inches thick)

Btn1—8 to 12 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure; hard, friable, sticky and very plastic; common very fine roots; few very fine tubular pores; many distinct clay skins on faces of peds and lining pores; few iron-manganese concretions; few 5- to 10-millimeter vertical root channels filled with soil; strongly alkaline (pH 8.6); clear wavy boundary. (4 to 8 inches thick)

Btn2—12 to 16 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; common fine distinct very dark grayish brown (10YR 3/2 moist) and black (10YR 2/1 moist) iron-manganese coatings; weak medium and coarse prismatic structure parting to moderate fine and medium angular blocky; hard, firm, sticky and very plastic; common very fine roots; few very fine tubular pores; common moderately thick clay skins on faces of peds and lining pores; 10 percent 10- to 15-millimeter weak durinodes; strongly alkaline (pH 8.6); clear irregular boundary. (3 to 10 inches thick)

Btqk—16 to 20 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine roots; few very fine tubular pores; common thin clay skins on faces of peds and lining pores; 45 percent 10- to 30-millimeter weak durinodes; few fine secondary carbonates and gypsum filaments; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (0 to 4 inches thick)

Bqky—20 to 26 inches; very pale brown (10YR 8/3) silt loam, light yellowish brown (10YR 6/4) moist; few fine distinct brownish yellow (10YR 6/6 moist) and dark yellowish brown (10YR 4/4 moist) mottles; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 25 percent 5- to 15-millimeter weak durinodes; common fine gypsum filaments; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary. (4 to 12 inches thick)

Bqk—26 to 42 inches; white (10YR 8/2) silt loam, very pale brown (10YR 7/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 25 percent 5- to 15-millimeter durinodes; few thin (less than 0.5 millimeter) discontinuous horizontal silica laminae; violently effervescent; weak continuous silica cementation; very strongly alkaline (pH 9.2); clear wavy boundary. (5 to 31 inches thick)

2Bky1—42 to 54 inches; white (10YR 8/2) sandy loam, very pale brown (10YR 7/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; few fine gypsum filaments; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary. (5 to 17 inches thick)

2Bky2—54 to 60 inches; very pale brown (10YR 8/3) sandy loam, very pale brown (10YR 7/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine pores; 10 percent pebbles; common fine gypsum filaments; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 11 miles southeast of Elko, about 2,200 feet east and 100 feet north of the southwest corner of sec. 12, T. 33

N., R. 56 E.; north latitude of 40 degrees, 45 minutes, 08 seconds; west longitude of 115 degrees, 36 minutes, 52 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring
Soil temperature: 47 to 54 degrees F
Depth to carbonates: 9 to 33 inches
Depth to silica cementation: 15 to 30 inches
Depth to mottles: 10 to 42 inches
Depth to gypsum: In places more than 15 inches
Control section: Clay content—averages 27 to 35 percent
Other features: A buried silty A horizon in some pedons near stream channels

A horizon:
Hue—2.5Y or 10YR
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—platy or massive
Reaction—moderately alkaline or strongly alkaline

E horizon (if it occurs):
Value—6 to 8 dry, 4 or 5 moist

Bt horizon:
Hue—2.5Y or 10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 5
Texture—silty clay loam and thin layers of clay loam
Structure—prismatic or columnar parting to angular or subangular blocky; commonly subangular or angular blocky in the lower part
Consistence—sticky or very sticky and plastic or very plastic
Reaction—moderately alkaline or very strongly alkaline
Durinodes—commonly 10 to 50 percent in the lower part of the horizon
Content of exchangeable sodium—15 to 45 percent
Other features—iron-manganese concretions in most pedons

Bqky and Bqk horizons:
Hue—2.5Y or 10YR
Value—6 to 8 dry, 3 to 5 moist
Chroma—2 to 4
Clay content—10 to 18 percent
Texture—mainly silt loam or loam; sandy loam in the lower part in some pedons
Cementation—mainly weak continuous silica cementation; in some parts of the Bqky and Bqk horizons, weak discontinuous silica cementation or 20 to 50 percent durinodes
Consistence—mainly hard and firm; slightly hard and friable in some parts of the Bqky and Bqk horizons
Reaction—strongly alkaline or very strongly alkaline
Effervescence—strongly effervescent or violently effervescent
Other features—a small amount of mica in some parts of the Bqky and Bqk horizons in some pedons

2Bky horizon:
Hue—2.5Y or 10YR
Value—7 or 8 dry, 3 to 5 moist
Chroma—2 to 4
Texture—stratified sandy loam to silty clay loam
Clay content—averages 10 to 20 percent
Content of rock fragments—0 to 20 percent, mainly pebbles
Structure—mainly massive; subangular blocky near krotovinas in some pedons
Reaction—strongly alkaline or very strongly alkaline
Effervescence—strongly effervescent or violently effervescent
Other features—a small amount of mica in some pedons

Bobs Series

The Bobs series consists of soils that are shallow to a lime-cemented hardpan. These soils formed in alluvium and a component of loess. They are on fan piedmont remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy, carbonatic, frigid, shallow Aridic Petrocalcic Palexerolls

Typical pedon: Bobs gravelly loam, 4 to 15 percent slopes, in an area of the Denay-Siri-Bobs association:

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; few fine and very fine roots; few fine continuous random tubular pores; 25 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (2 to 7 inches thick)

A2—2 to 13 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium and coarse roots; few very fine and fine discontinuous random

tubular pores; 25 percent pebbles with lime coatings on the underside; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (5 to 13 inches thick)

Bk—13 to 19 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; slightly hard, friable, sticky and slightly plastic; common very fine and fine roots; common fine continuous random tubular pores; 30 percent pebbles with lime coatings on all sides; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (2 to 7 inches thick)

Bkm—19 to 29 inches; light brown (7.5YR 6/4), indurated petrocalcic material, brown (7.5YR 5/4) moist; massive; extremely hard, extremely firm; few very fine roots along fractures; 40 percent pebbles cemented in matrix; violently effervescent; strongly alkaline (pH 8.6).

Type location: Eureka County, Nevada; about 16 miles southeast of Elko, about 1,585 feet south and 1,585 feet west of the northeast corner of sec. 29, T. 32 N., R. 57 E.; north latitude of 40 degrees, 37 minutes, 57 seconds; west longitude of 115 degrees, 34 minutes, 20 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring in some years

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

Depth to a petrocalcic horizon: 10 to 20 inches

Reaction: Moderately alkaline or strongly alkaline

Control section: Clay content—10 to 20 percent; content of rock fragments—15 to 35 percent, mainly pebbles, some of which are pan fragments; calcium carbonate equivalent (in the fraction less than 20 millimeters in size)—40 to 60 percent by weight

A horizon:
- Value—4 or 5 dry, 2 to 4 moist
- Chroma—1 to 3
- Structure—weak or moderate very fine to medium granular or subangular blocky or weak very thin to medium platy in the upper part

Bk horizon (if it occurs):
- Hue—10YR or 7.5YR
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—2 to 4
- Texture—gravelly loam, gravelly very fine sandy loam, or gravelly silt loam
- Structure—angular or subangular blocky
- Other features—lime-coated rock fragments

Bkm horizon:
- Hue—7.5YR or 10YR
- Value—6 to 8 dry, 5 to 7 moist
- Chroma—1 to 4

Bobs Variant

The Bobs Variant consists of well drained soils that are shallow to a lime-cemented hardpan. These soils formed in alluvium derived mainly from limestone and dolostone. They are on fan piedmont remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid, shallow Aridic Petrocalcic Palexerolls

Typical pedon: Bobs Variant loam, 4 to 15 percent slopes, in an area of the Bobs Variant-Dewar association:

A1—0 to 4 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and few fine roots; many very fine interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary. (3 to 5 inches thick)

A2—4 to 9 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; common medium thick lime pendants on the lower side of pebbles; 10 percent coarse fragments consisting of pebbles and pebble-size pan fragments; mildly alkaline (pH 7.8); clear smooth boundary. (4 to 6 inches thick)

Bk—9 to 19 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common fine and few medium and coarse roots; common very fine and fine tubular pores; many thick lime pendants on the lower side of pebbles; 40 percent coarse fragments consisting of pebbles and pebble-size pan fragments; 6 percent calcium carbonate equivalent in the fraction less than 2 millimeters in size; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (3 to 11 inches thick)

Bkm—19 to 34 inches; petrocalcic material with a 1- to 8-millimeter laminar lime cap; few discontinuous

pockets of brown (10YR 5/3) loam 3 to 10 inches thick, dark brown (10YR 3/3) moist; violently effervescent; moderately alkaline (pH 8.0). (12 to 20 inches thick)

2Bky1—34 to 40 inches; very pale brown (10YR 7/3) gravelly loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; many thick lime coatings on pebbles; many very fine and fine gypsum filaments; 15 percent pebbles; weak lime cementation; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (5 to 10 inches thick)

3Bky2—40 to 54 inches; light gray (10YR 7/2) extremely gravelly loam, grayish brown (10YR 5/2) moist; massive; hard, friable, slightly sticky and plastic; many thick lime coatings on pebbles; common very fine and fine gypsum filaments; 65 percent pebbles; weak lime cementation; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 30 miles north of Wells, about 3,200 feet west of the northeast corner of sec. 31, T. 42 N., R. 61 E.; north latitude of 41 degrees, 29 minutes, 55 seconds; west longitude of 115 degrees, 07 minutes, 05 seconds; about 300 feet inside the boundary of the survey area of the northeast part of Elko County

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in winter and spring

Soil temperature: 45 to 47 degrees F

Thickness of the mollic epipedon: 10 to 20 inches

Depth to a petrocalcic horizon: 10 to 20 inches

Control section: Clay content—18 to 27 percent; content of rock fragments—35 to 50 percent, mainly pebbles and pebble-size pan fragments

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3

Bk horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Texture—very gravelly loam or very gravelly silt loam
- Reaction—mildly alkaline or moderately alkaline

Boulflat Series

The Boulflat series consists of well drained soils that are moderately deep to a strongly cemented duripan. These soils formed in residuum and colluvium derived from andesite and a component of loess with a high content of volcanic ash. The soils are on the crests and side slopes of hills. Slopes are 4 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical pedon: Boulflat cobbly loam, 4 to 15 percent slopes, in an area of the Boulflat, cobbly-Boulflat-Humdun association:

A—0 to 6 inches; pale brown (10YR 6/3) cobbly loam, dark brown (10YR 3/3) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine vesicular pores; 10 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral (pH 7.2); clear smooth boundary. (2 to 6 inches thick)

AB—6 to 10 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores; 15 percent pebbles; neutral (pH 7.2); clear smooth boundary. (0 to 6 inches thick)

Bt—10 to 20 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; hard, firm, sticky and plastic; few coarse and fine and common medium roots; common very fine and few fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 15 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 12 inches thick)

Bk1—20 to 30 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, sticky and plastic; common fine and few medium roots; common very fine and few tubular pores; common medium irregular soft lime masses; 35 percent pebbles; strongly effervescent; moderately alkaline (pH 8.1); clear wavy boundary. (8 to 10 inches thick)

Bk2—30 to 34 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine tubular pores; 35 percent pebbles; weak lime cementation; violently effervescent; moderately alkaline (pH 8.3); clear wavy boundary. (0 to 4 inches thick)

Bqkm—34 to 39 inches; light gray and white (10YR 7/2 and 8/1), strongly cemented duripan with few discontinuous 1- to 3-millimeter silica laminae; massive; extremely hard and very firm; violently

effervescent; moderately alkaline (pH 8.3). (2 to 15 inches thick)
2R—39 inches; andesite.

Type location: Elko County, Nevada; about 6 miles northeast of Carlin, about 2,000 feet east of the northwest corner of sec. 4, T. 33 N., R. 53 E.; north latitude of 40 degrees, 46 minutes, 56 seconds; west longitude of 116 degrees, 01 minute, 13 seconds

Range in Characteristics

Soil moisture: Usually dry, especially when the soil temperature is above 41 degrees F; moist in some part from late October through early June
Soil temperature: 47 to 52 degrees F
Depth to a strongly cemented duripan: 20 to 34 inches
Depth to hard bedrock: 22 to 40 inches

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak to strong very thin to thick platy or granular
Reaction—neutral or mildly alkaline

Bt horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4
Texture—gravelly loam, gravelly clay loam, or gravelly sandy clay loam
Clay content—25 to 35 percent
Content of rock fragments—15 to 35 percent, mainly pebbles
Structure—weak or moderate very fine to medium subangular or angular blocky
Reaction—neutral or mildly alkaline

Bk horizon:
Texture—very gravelly loam or very gravelly sandy loam
Content of rock fragments—35 to 60 percent, mainly pebbles
Reaction—mildly alkaline or moderately alkaline
Effervescence—strongly effervescent or violently effervescent
Lime—lime coatings on all pebbles

Bqkm horizon:
Value—7 or 8 dry, 6 to 8 moist
Chroma—1 to 4
Effervescence—strongly effervescent or violently effervescent
Silica laminae—up to 5 millimeters thick and not continuous horizontally
Other features—the strongly cemented duripan rests directly on bedrock

Bregar Series

The Bregar series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium derived from welded tuff and rhyolite. These soils are on mountain crests, hills, and the upper side slopes. Slopes are 2 to 75 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Xerollic Haplargids

Typical pedon: Bregar very gravelly coarse sandy loam, 4 to 15 percent slopes, eroded, in an area of the Chen-Bregar-Loncan association:

A—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine interstitial pores; 50 percent pebbles; neutral (pH 6.9); clear wavy boundary. (2 to 5 inches thick)
Bt1—2 to 5 inches; light brownish gray (10YR 6/2) very gravelly sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and few very fine roots; common fine and few very fine tubular pores; few thin clay films on faces of peds and lining pores; 45 percent pebbles; neutral (pH 7.0); clear wavy boundary. (2 to 6 inches thick)
Bt2—5 to 8 inches; light brownish gray (10YR 6/2) very gravelly clay loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and very fine roots; common fine and few very fine tubular pores; few thin clay films on faces of peds; 50 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt irregular boundary. (0 to 4 inches thick)
2R—8 inches; hard, somewhat fractured, welded tuff; common thick clay films coating bedrock surface.

Type location: Elko County, Nevada; about 26 miles north of Elko, about 1,800 feet west and 1,800 feet south of the northeast corner of sec. 22, T. 38 N., R. 53 E.; north latitude of 41 degrees, 10 minutes, 24 seconds; west longitude of 115 degrees, 59 minutes, 38 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in winter and spring in some years
Soil temperature: 43 to 46 degrees F

Depth to bedrock: 5 to 12 inches
Reaction: Slightly acid to mildly alkaline
Control section: Clay content—averages 18 to 30 percent; content of rock fragments—averages 35 to 70 percent
Other features: Some pedons have a Bw horizon, which is as much as 5 inches thick; the upper 3 inches of the bedrock is weathered to various degrees in some pedons.

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak to strong very fine to medium granular or subangular blocky, thin to medium platy, or massive

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—very gravelly clay loam, extremely cobbly clay loam, very gravelly sandy clay loam, or extremely cobbly sandy clay loam
Clay content—25 to 35 percent
Content of rock fragments—averages 50 to 75 percent, mainly pebbles and cobbles and as much as 15 percent stones
Structure—weak or moderate fine or medium angular or subangular blocky or massive
Other features—broken, irregular, or wavy lower boundary

Bucan Series

The Bucan series consists of deep, well drained soils that formed in loess with a high content of volcanic ash over residuum derived from tuff. These soils are on the side slopes of hills. Slopes are 30 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Xerollic Haplargids

Typical pedon: Bucan loam, 30 to 50 percent slopes, in an area of the Bucan-Vanwyper-Akler association:

A1—0 to 4 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; moderate very thin platy structure; soft, very friable, nonsticky and slightly plastic; many very fine and common fine roots; many very fine interstitial and tubular pores; 10 percent pebbles; neutral (pH 7.3); clear wavy boundary. (2 to 6 inches thick)

A2—4 to 11 inches; light brownish gray (10YR 6/2) clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and few fine roots; common very fine and few fine tubular pores; 10 percent pebbles; neutral (pH 7.3); abrupt wavy boundary. (0 to 7 inches thick)

Bt1—11 to 21 inches; pale brown (10YR 6/3) clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (3 to 10 inches thick)

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) cobbly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine interstitial pores; moderately prominent clay films lining pores; 10 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary. (7 to 15 inches thick)

Btk1—30 to 41 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine interstitial pores; many moderately thick clay films on faces of peds and lining pores; common medium soft lime masses; 10 percent pebbles and 5 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary. (8 to 12 inches thick)

Btk2—41 to 57 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few very fine roots; common very fine interstitial and few fine tubular pores; few fine thin clay films on faces of peds and lining pores; few fine soft lime masses; 15 percent pebbles and 5 percent cobbles; moderately alkaline (pH 7.9). (15 to 18 inches thick)

2R—57 inches; unweathered bedrock.

Type location: Elko County, Nevada; about 7 miles northeast of Elko, about 400 feet west and 1,100 feet north of the southeast corner of sec. 27, T. 35 N., R. 56 E.; north latitude of 40 degrees, 52 minutes, 41 seconds; west longitude of 115 degrees, 38 minutes, 05 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring
Soil temperature: 45 to 47 degrees F

Thickness of the solum and depth to bedrock: 40 to 60 inches
Depth to segregated lime: 15 to 30 inches
Control section: Clay content—45 to 60 percent; content of rock fragments—averages 15 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate very thin to medium platy, fine or medium granular or subangular blocky, or massive
Other features—where the material is mixed to a depth of 7 inches, the value dry is 6 or the thickness of the epipedon is less than one-third of the solum thickness

Bt horizon:
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Clay content—40 to 60 percent
Content of rock fragments—0 to 20 percent, averages less than 15 percent
Structure—weak to strong fine or medium subangular or angular blocky in the Bt1 horizon; moderate or strong fine or medium prismatic in the Bt2 horizon
Reaction—neutral or mildly alkaline

Btk horizon:
Value—4 to 6 dry, 4 or 5 moist
Chroma—3 to 6
Texture—gravelly clay loam, gravelly clay, or cobbly clay
Clay content—35 to 45 percent
Content of rock fragments—15 to 35 percent, mainly pebbles, but cobbles common in some parts of the horizon
Structure—medium or fine angular blocky or prismatic or massive
Reaction—mildly alkaline to strongly alkaline

Bullump Series

The Bullump series consists of deep, well drained soils that formed in colluvium derived from rhyolite, quartzite, chert, argillite, and shale and a component of loess. These soils are on mountain side slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 15 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical pedon: Bullump gravelly loam, 30 to 50 percent slopes, in an area of the Bullump-Quarz-Gando association:

A1—0 to 3 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and common fine tubular pores; 20 percent pebbles; neutral (pH 7.2); clear wavy boundary. (2 to 8 inches thick)

A2—3 to 9 inches; dark brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine and common fine tubular pores; 20 percent pebbles; neutral (pH 7.3); clear wavy boundary. (4 to 12 inches thick)

BA—9 to 23 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine and fine roots; many very fine and common fine tubular pores; 35 percent pebbles; neutral (pH 7.3); gradual wavy boundary. (0 to 20 inches thick)

Bt1—23 to 32 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; common thin clay films on faces of peds; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.3); clear wavy boundary. (7 to 12 inches thick)

Bt2—32 to 54 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common fine and few very fine roots; common very fine and fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 40 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (8 to 25 inches thick)

R—54 inches; hard, fractured quartzite; few fine and coarse and common medium roots lining fractures.

Type location: Elko County, Nevada; about 2 miles southwest of Ryndon, about 220 feet south and 500 feet west of the northeast corner of sec. 24, T. 35 N., R. 56 E.; north latitude of 40 degrees, 54 minutes, 43 seconds; west longitude of 114 degrees, 20 minutes, 14 seconds

Range in Characteristics

Soil moisture: Moist in winter and early summer, dry from late July through early October; additional

moisture sometimes resulting from lateral water movement in the lower part of the profile
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 20 to 40 inches
Depth to bedrock: 40 to 80 inches
Reaction: Slightly acid to mildly alkaline
Control section: Clay content—25 to 35 percent; content of rock fragments—35 to 55 percent, mainly pebbles and some cobbles
Other features: Some pedons have a C horizon at a depth of more than 40 inches.

A and BA horizons:
Value—3 to 5 dry, 2 or 3 moist
Chroma—1 to 3
Structure—subangular blocky or granular
Organic matter content—2 to 6 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6 dry, 2 to 4 moist
Chroma—2 to 6
Texture—very gravelly loam or very gravelly clay loam
Clay content—25 to 35 percent
Content of rock fragments—35 to 55 percent, mainly pebbles
Structure—subangular or angular blocky
Other features—uncoated sand grains and a few silt coatings lining pores in some pedons; few distinct mottles or manganese stains on pebbles in some pedons

Bullvaro Series

The Bullvaro series consists of very deep, well drained soils that formed in colluvium derived from welded tuff and a component of loess. These soils are on the side slopes of plateaus. Slopes are 30 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Argixerolls

Typical pedon: Bullvaro loam, 30 to 75 percent slopes, in an area of the Sumine-Vitale-Bullvaro association:

A1—0 to 4 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many medium, fine, and very fine roots; few medium and many fine and very fine tubular pores; 10 percent pebbles; neutral; (pH 6.6); clear smooth boundary. (2 to 6 inches thick)

A2—4 to 9 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium or fine granular structure; soft, very friable, slightly sticky and slightly plastic; common medium, fine, and very fine roots; few medium and many fine and very fine tubular pores; 10 percent pebbles; neutral (pH 6.8); clear smooth boundary. (4 to 7 inches thick)

A3—9 to 15 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and very fine roots; common fine and many very fine tubular pores; 10 percent pebbles; neutral (pH 7.0); clear wavy boundary. (5 to 8 inches thick)

2Bt1—15 to 23 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and plastic; few medium and common fine and very fine roots; common fine and many very fine tubular pores; common thin clay skins on faces of peds and lining pores; 25 percent pebbles; neutral (pH 7.0); gradual wavy boundary. (6 to 10 inches thick)

3Bt2—23 to 37 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and plastic; few very fine to medium roots; common very fine tubular pores; few faint clay skins on faces of peds and common distinct clay skins lining pores; 60 percent pebbles; neutral (pH 7.2); gradual wavy boundary. (12 to 18 inches thick)

3C—37 to 60 inches; yellowish brown (10YR 5/4) extremely gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine and fine tubular pores; 70 percent pebbles and 5 percent cobbles; neutral (pH 7.2).

Type location: Elko County, Nevada; about 5 miles northeast of Rowland, about 2,000 feet south and 1,000 feet west of the northeast corner of sec. 12, T. 47 N., R. 56 E.; north latitude of 41 degrees, 58 minutes, 38 seconds; west longitude of 115 degrees, 35 minutes, 35 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring
Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 30 to 40 inches
Depth to bedrock: 60 to 80 inches
Combined thickness of the A and Bt horizons: 30 to 45 inches
Control section: Clay content—18 to 25 percent; content of rock fragments—averages 35 to 60 percent, mainly pebbles
A horizon:
Chroma—2 or 3 dry or moist
Structure—granular in the upper part and granular or subangular blocky in the lower part
Bt horizon:
Chroma—2 or 3 dry or moist
Content of rock fragments—15 to 35 percent pebbles in the upper part and 60 to 75 percent pebbles in the lower part
C horizon:
Value—5 or 6 dry
Clay content—10 to 18 percent
Content of rock fragments—60 to 75 percent, mainly pebbles
Structure—subangular blocky or massive

Bunky Series

The Bunky series consists of well drained soils that are moderately deep to a cemented duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess that has a high content of volcanic ash. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durorthids

Typical pedon: Bunky loam, 2 to 15 percent slopes, in an area of the Bunky-Grina-Elko association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular pores; neutral (pH 7.0); abrupt smooth boundary. (3 to 12 inches thick)

A2—3 to 9 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (0 to 6 inches thick)

Bw—9 to 15 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, sticky and plastic; common very fine, fine, and coarse roots; common very fine tubular pores; mildly alkaline (pH 7.8); abrupt wavy boundary. (4 to 10 inches thick)

Bq—15 to 21 inches; very pale brown (10YR 7/3) loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, firm, brittle where cemented, slightly sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; weak discontinuous silica cementation; weak thin (1 millimeter) discontinuous silica laminae throughout; moderately alkaline (pH 8.4); clear wavy boundary. (4 to 14 inches thick)

Bqkm—21 to 34 inches; light gray (10YR 7/2) duripan with many thin (1 or 2 millimeters) discontinuous silica laminae; yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 35 to 45 percent mixed weak and strong durinodes; violently effervescent; strong silica cementation; strongly alkaline (pH 8.6); abrupt wavy boundary. (4 to 13 inches thick)

Bqk—34 to 51 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; 35 to 45 percent mixed weak and strong durinodes; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary. (0 to 17 inches thick)

Bqkm'—51 to 60 inches; light gray (10YR 7/2), strongly cemented duripan with many thin (2 or 3 millimeters) discontinuous brown silica laminae; brown (10YR 5/3) moist; massive; hard, firm, brittle; few very fine roots concentrated along the top of silica laminae; many very fine tubular pores; many fine lime filaments; violently effervescent; strongly alkaline (pH 8.8).

Type location: Elko County, Nevada; about 19 miles south of Elko, about 530 feet north and 530 feet west of the southeast corner of sec. 24, T. 31 N., R. 55 E.; north latitude of 40 degrees, 33 minutes, 00 seconds; west longitude of 115 degrees, 43 minutes, 14 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in winter and spring in some years
Soil temperature: 47 to 50 degrees F
Depth to a duripan: 20 to 36 inches
Control section: Clay content—18 to 27 percent; content of rock fragments—averages 0 to 25 percent
Other features: Some pedons have a Bqk horizon that is

35 to 45 percent durinodes alternating with the strongly cemented duripan.

A horizon:
Value—3 or 4 moist
Chroma—2 to 4
Structure—thin or very thin platy, fine or very fine subangular blocky, or massive

Bw horizon:
Value—4 or 5 moist
Chroma—3 or 4
Texture—loam, silt loam, or clay loam
Content of rock fragments—0 to 15 percent pebbles
Structure—subangular blocky or massive
Reaction—neutral or mildly alkaline

Bqk horizon:
Texture—mainly gravelly sandy loam, gravelly silt loam, or gravelly or very gravelly loam; loam in some pedons
Content of rock fragments—0 to 45 percent pebbles
Reaction—mildly alkaline to strongly alkaline
Effervescence—slightly effervescent to violently effervescent
Other features—30 to 70 percent firm to extremely firm durinodes or weak discontinuous silica cementation

Bqkm horizon:
Induration—strong continuous cementation
Consistence—very firm or extremely firm

Cameek Series

The Cameek series consists of moderately well drained soils that are shallow to a duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. The soils are on the side slopes and summits of fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid, shallow Aridic Durixerolls

Typical pedon: Cameek silt loam, 4 to 15 percent slopes, in an area of the Cameek-Bilbo-Cameek, gently sloping association:

A1—0 to 2 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; slightly hard, very friable, slightly sticky and plastic; many very fine roots; many very fine and fine vesicular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (2 to 7 inches thick)

A2—2 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine and common medium roots; common fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (0 to 5 inches thick)

Bty—7 to 12 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium subangular blocky structure; hard, friable, very sticky and very plastic; common fine and few medium roots; common fine tubular pores; many moderately thick clay films lining pores, on faces of peds, and bridging mineral grains; common fine soft gypsum masses; and few silica coatings on the underside of pebbles; 25 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (2 to 6 inches thick)

Btqy—12 to 18 inches; yellowish brown (10YR 5/4) gravelly sandy clay, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; hard, firm, very sticky and very plastic; few fine roots; common fine tubular pores; 30 percent durinodes in a matrix with weak discontinuous silica cementation; many moderately thick clay films lining pores, on faces of peds, and bridging mineral grains; common fine soft rounded and threadlike gypsum masses and common silica coatings on the underside of pebbles; 25 percent pebbles; mildly alkaline (pH 7.6). (6 to 13 inches thick)

Bqm1—18 to 24 inches; continuous indurated duripan; silica laminae 0.5 millimeter to 2 millimeters thick. (6 to 10 inches thick)

Bqm2—24 to 40 inches; discontinuous indurated duripan; silica laminae 2 to 5 millimeters thick.

Type location: Elko County, Nevada; about 29 miles southwest of Jackpot and 2 miles east of the Humboldt National Forest, about 1,500 feet west and 2,000 feet south of the northeast corner of sec. 25, T. 45 N., R. 60 E.; north latitude of 41 degrees, 45 minutes, 54 seconds; west longitude of 115 degrees, 07 minutes, 59 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches, in places including the upper part of the argillic horizon

Depth to a duripan: 14 to 20 inches

Control section: Clay content—averages 35 to 55

percent; content of rock fragments—averages 10 to 35 percent

A horizon:
Chroma—2 or 3
Structure—moderate or strong medium or thick platy; subangular blocky in the lower part in some pedons

Bty horizon:
Value—4 or 5 dry, 2 to 4 moist
Chroma—2 to 4
Texture—clay loam or gravelly clay
Clay content—30 to 45 percent
Content of rock fragments—5 to 25 percent
Structure—platy or subangular blocky
Other features—gypsum masses and threads in most pedons

Btqy horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—clay, gravelly clay, or gravelly sandy clay
Clay content—40 to 60 percent
Content of rock fragments—10 to 35 percent
Structure—prismatic or angular or subangular blocky
Silica cementation—the underside of pebbles coated with silica; as much as 30 percent weak discontinuous silica cementation in the lower part of the horizon
Mottles—few and faint; no mottles in some pedons
Other features—gypsum masses and threads in most pedons

Bqm horizon:
Thickness of laminae—0.5 millimeter to 7.0 millimeters

2C horizon (if it occurs):
Content of rock fragments—35 to 50 percent pebbles and 25 to 35 percent cobbles

Cavehill Series

The Cavehill series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from limestone and dolostone and a component of loess. These soils are on mountain side slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Typic Calcixerolls

Typical pedon: Cavehill very gravelly silt loam, 15 to 50 percent slopes, in an area of the Hopeka-Cavehill association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; few very fine tubular pores; 45 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary. (2 to 6 inches thick)

A2—3 to 16 inches; grayish brown (10YR 5/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and fine tubular pores; 25 percent pebbles, 20 percent cobbles, and 10 percent stones; strongly effervescent; strongly alkaline (pH 8.5); clear wavy boundary. (5 to 13 inches thick)

A3—16 to 26 inches; brown (10YR 5/3) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few coarse roots; common very fine tubular and interstitial pores; thick lime pendants on the underside of rock fragments; 30 percent pebbles, 15 percent cobbles, and 10 percent stones; violently effervescent; strongly alkaline (pH 8.5); abrupt wavy boundary. (0 to 12 inches thick)

Bk—26 to 37 inches; very pale brown (10YR 8/3) very gravelly loam, very pale brown (10YR 7/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine and coarse roots; few very fine tubular pores; thick lime pendants on the underside of rock fragments; 30 percent pebbles and 5 percent cobbles; weak discontinuous lime cementation; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (6 to 11 inches thick)

R—37 inches; dolostone.

Type location: Elko County, Nevada; about 28 miles south of Carlin, about 500 feet west and 1,300 feet south of the northeast corner of sec. 19, T. 28 N., R. 53 E.; north latitude of 40 degrees, 17 minutes, 54 seconds; west longitude of 116 degrees, 01 minute, 45 seconds

Range in Characteristics

Soil moisture: Usually moist, dry from about mid-July through mid-October
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 14 to 20 inches

Depth to bedrock: 20 to 40 inches
Reaction: Moderately alkaline or strongly alkaline
Control section: Clay content—18 to 27 percent; content of rock fragments—35 to 60 percent, mainly pebbles and cobbles but stones are common in some pedons; texture—very gravelly silt loam, very gravelly loam, very cobbly loam, or very cobbly silt loam; content of calcium carbonate—averages 40 to 60 percent throughout, but 15 to 50 percent in the upper part and 50 to 80 percent in the lower part

A horizon:
- Value—4 or 5 dry
- Chroma—2 or 3
- Structure—granular or subangular blocky
- Effervescence—effervescent after mixing to a depth of 7 inches in the upper 10 inches; strongly effervescent or violently effervescent at a depth of more than 10 inches
- Other features—thick lime pendants on rock fragments in the lower part of the horizon in some pedons

Bk horizon:
- Value—6 to 8 dry, 4 to 7 moist
- Chroma—2 or 3
- Content of rock fragments—mainly averages 35 to 60 percent; in some pedons 25 to 35 percent pebbles and cobbles in thin layers directly above the bedrock
- Structure—subangular blocky or massive
- Other features—weak discontinuous lime cementation and thin to thick lime pendants on the underside of rock fragments

Chen Series

The Chen series consists of shallow, well drained soils that formed in residuum derived from volcanic rocks and a component of loess that has a high content of volcanic ash. These soils are on the crests of hills, plateaus, and mountains and on side slopes. Slopes are 2 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls

Typical pedon: Chen very cobbly loam, 15 to 30 percent slopes, in an area of the Chen-Arcia-Cleavage association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; 25 percent pebbles and 20 percent cobbles; neutral (pH 6.6); abrupt smooth boundary. (3 to 6 inches thick)

A2—3 to 5 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine vesicular pores; 30 percent pebbles and 20 percent cobbles; neutral (pH 6.6); abrupt smooth boundary. (2 to 5 inches thick)

Bt1—5 to 9 inches; reddish brown (5YR 4/3) very gravelly clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine and fine roots; many very fine and common fine tubular pores; few thin clay films on faces of peds; 35 percent pebbles and 15 percent cobbles; neutral (pH 6.7); abrupt smooth boundary. (2 to 5 inches thick)

Bt2—9 to 15 inches; reddish brown (5YR 4/3) very gravelly clay, dark reddish brown (5YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; many very fine and common fine tubular pores; common thin clay films on faces of peds and lining pores; 35 percent pebbles and 15 percent cobbles; neutral (pH 6.7); abrupt wavy boundary. (4 to 7 inches thick)

R—15 inches; unweathered, welded tuff.

Type location: Elko County, Nevada; about 19 miles south of Carlin, about 1,190 feet south and 750 feet west of the northeast corner of sec. 29, T. 30 N., R. 53 E.; north latitude of 40 degrees, 27 minutes, 28 seconds; west longitude of 116 degrees, 01 minute, 34 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 7 to 17 inches, generally including the upper part of the argillic horizon
Depth to bedrock: 12 to 20 inches
Reaction: Slightly acid to mildly alkaline throughout

A horizon:
- Value—4 to 6 dry (less than 5.5 where the upper 7 inches is mixed), 2 or 3 moist
- Chroma—2 or 3
- Structure—weak or moderate medium or thin platy or very fine to medium granular or subangular blocky

Bt horizon:
Hue—mainly 7.5YR or 10YR; 5YR common in areas with large concentrations of iron in the parent material
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4
Texture—mainly very gravelly clay, extremely gravelly clay, very cobbly clay, or extremely cobbly clay; a thin Bt1 horizon of very gravelly clay loam in some pedons
Clay content—averages 40 to 55 percent
Content of rock fragments—40 to 65 percent pebbles and cobbles, generally increasing with increasing depth
Structure—weak to strong fine or medium angular or subangular blocky

Cherry Spring Series

The Cherry Spring series consists of well drained soils that are moderately deep to a strongly cemented duripan. These soils formed in loess that has a high content of volcanic ash and that is underlain by alluvium derived from mixed rock sources. The soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Haploxerollic Durargids

Typical pedon: Cherry Spring silt loam, 2 to 8 percent slopes, in an area of the Chiara-Cherry Spring-Orovada association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and few medium vesicular pores; neutral (pH 7.0); clear wavy boundary. (2 to 8 inches thick)

A2—3 to 10 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial and few fine tubular pores; neutral (pH 7.2); clear wavy boundary. (0 to 7 inches thick)

Bt—10 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine roots; common very fine and fine tubular pores; common thin clay films on faces of peds and lining pores; mildly alkaline (pH 7.4); clear wavy boundary. (4 to 15 inches thick)

Btqk—15 to 23 inches; light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; massive; very hard, firm, nonsticky and nonplastic; common very fine and few fine roots; common fine tubular pores; few thin clay films on faces of peds and lining pores; 40 percent durinodes; strongly effervescent; weak silica cementation; moderately alkaline (pH 7.9); abrupt smooth boundary. (5 to 10 inches thick)

2Bqkm—23 to 41 inches; light gray (10YR 7/2), strongly cemented duripan with thin (1 or 2 millimeters) discontinuous silica laminae; brown (10YR 5/3) moist; massive; extremely hard, very firm, nonsticky and nonplastic; few very fine roots; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (18 to 20 inches thick)

2Bk—41 to 63 inches; light gray (10YR 7/2), stratified sandy loam to extremely gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 2.5 miles northeast of Carlin, about 1,900 feet west and 2,400 feet south of the northeast corner of sec. 18, T. 33 N., R. 53 E.; north latitude of 40 degrees, 44 minutes, 48 seconds; west longitude of 116 degrees, 03 minutes, 03 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early June through October, moist in places in winter and spring
Soil temperature: 47 to 51 degrees F
Combined thickness of the A and Bt horizons: 20 to 40 inches
Depth to a strongly cemented duripan: 20 to 40 inches
Control section: Clay content—20 to 35 percent; content of rock fragments—0 to 15 percent
Other features: Substrata of contrasting textures are below the duripan in some pedons.

A horizon:
Value—5 to 7 dry (more than 5.5 where mixed), 3 or 4 moist
Chroma—2 or 3
Structure—weak to strong thin to thick platy or subangular blocky
Reaction—neutral or mildly alkaline

Bt horizon:
Hue—10YR or 7.5YR
Chroma—3 to 6
Texture—loam, silt loam, or clay loam

Structure—weak or moderate fine to coarse prismatic parting to subangular blocky
Reaction—mildly alkaline to strongly alkaline, becoming more alkaline with increasing depth

Btqk horizon:
Hue—10YR or 7.5YR
Texture—loam, silt loam, or clay loam
Reaction—mildly alkaline to strongly alkaline
Cementation—weak silica cementation or 20 to 40 percent durinodes in a friable matrix
Carbonates—few to many lime filaments
Effervescence—slightly to violently effervescent

2Bqkm horizon:
Reaction—moderately alkaline to very strongly alkaline
Other features—thin discontinuous silica laminae in some pedons

2Bk horizon (if it occurs):
Location in profile—mainly below the duripan
Texture—stratified extremely gravelly sandy loam to sandy loam

Chiara Series

The Chiara series consists of well drained soils that are shallow to a duripan. These soils formed in alluvium derived from mixed rock sources and in a loess mantle with a high content of volcanic ash. The soils are on the summits and side slopes of fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durorthids

Typical pedon: Chiara silt loam, 2 to 8 percent slopes, in an area of the Hunnton-Chiara association:

A1—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; strong very thick platy structure parting to moderate very thin platy; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine vesicular and few very fine interstitial pores; 10 percent pebbles; neutral (pH 7.2); abrupt smooth boundary. (2 to 4 inches thick)

A2—2 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak thick platy structure parting to moderate very thin platy; slightly hard, friable, slightly sticky and plastic; many very fine and common fine roots; few very fine tubular and interstitial pores; mildly alkaline (pH 7.4); clear smooth boundary. (0 to 4 inches thick)

Bw—4 to 8 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine and common medium roots; common very fine and few medium pores; mildly alkaline (pH 7.6); clear smooth boundary. (4 to 7 inches thick)

Bqk—8 to 10 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; hard, firm, sticky and slightly plastic; common very fine and fine roots; few very fine tubular pores; 20 percent durinodes; weak cementation; moderately alkaline (pH 8.0); abrupt wavy boundary. (2 to 10 inches thick)

Bqkm—10 to 20 inches; white (10YR 8/2), indurated duripan that has continuous silica laminae ½ to 1 inch thick; very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; violently effervescent; moderately alkaline (pH 8.2).

Type location: Elko County, Nevada; about 24 miles north of Elko, about 2,400 feet east and 1,600 feet north of the southwest corner of sec. 2, T. 39 N., R. 57 E.; north latitude of 41 degrees, 17 minutes, 31 seconds; west longitude of 115 degrees, 31 minutes, 11 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring
Soil temperature: 47 to 53 degrees F
Depth to a duripan: 10 to 20 inches
Depth to lime: 7 to 15 inches
Control section: Clay content—5 to 18 percent; sand fraction—averages less than 15 percent fine sand or coarser sand; content of rock fragments—where mixed, as much as 5 percent, mainly pebbles, but in some pedons 4 to 25 percent, mainly duripan fragments, in thin layers in some horizons

A horizon:
Value—3 or 4 moist
Chroma—2 or 3
Structure—weak to very strong thin to thick platy or massive
Reaction—neutral to moderately alkaline

Bw horizon:
Value—6 or 7 dry, 3 to 5 moist
Chroma—3 or 4
Texture—very fine sandy loam, loam, or silt loam
Structure—weak to strong fine to coarse subangular blocky or weak prismatic
Reaction—mildly alkaline to strongly alkaline

Bqk horizon:
Texture—very fine sandy loam, loam, or silt loam
Reaction—moderately alkaline or strongly alkaline
Cementation—20 to 60 percent weakly cemented and brittle durinodes 0.3 to 1 inch in diameter

Bqkm horizon:
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Structure—massive or weak or moderate thick platy
Other features—a stratified gravelly and sandy substratum at a depth of more 40 inches in some pedons

Cleavage Series

The Cleavage series consists of shallow, well drained soils that formed in residuum or colluvium derived from rhyolite, welded tuff, chert, shale, quartzite, sandstone, conglomerate, and other igneous rocks. These soils are on hills, plateaus, and mountain crests and side slopes. Slopes are 2 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon: Cleavage very gravelly loam, 15 to 50 percent slopes, in an area of the Cleavage-Cleavage, very cobbly-Loncan association:

A1—0 to 2 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine and fine interstitial pores; 45 percent pebbles; neutral (pH 7.0); clear smooth boundary. (1 to 9 inches thick)

A2—2 to 6 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; few very fine tubular and common very fine interstitial pores; 45 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (0 to 8 inches thick)

BA—6 to 9 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine and few medium and coarse roots; common very fine tubular pores; 50 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 6 inches thick)

Bt—9 to 15 inches; light yellowish brown (10YR 6/4) very gravelly loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 50 percent pebbles; mildly alkaline (pH 7.8); abrupt wavy boundary. (6 to 12 inches thick)

R—15 inches; hard, fractured conglomerate; few very fine roots extending down fracture planes and few thin clay films coating fracture planes.

Type location: Elko County, Nevada; about 19 miles north of Elko, about 2,400 feet south and 1,980 feet east of the northwest corner of sec. 2, T. 36 N., R. 55 E.; north latitude of 41 degrees, 02 minutes, 22 seconds; west longitude of 115 degrees, 44 minutes, 56 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October for 70 to 120 consecutive days, moist in winter and spring
Soil temperature: 42 to 47 degrees F
Thickness of the mollic epipedon: 7 to 10 inches, not including the Bt horizon
Depth to bedrock: 14 to 20 inches
Reaction: Neutral or mildly alkaline
Control section: Clay content—20 to 35 percent; content of rock fragments—50 to 80 percent, mainly pebbles and cobbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—platy, granular, or subangular blocky

BA horizon:
Chroma—2 to 4
Texture—very cobbly or very gravelly loam

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—very cobbly, extremely cobbly, very gravelly, or extremely gravelly clay loam, very gravelly sandy clay loam, or very cobbly or very gravelly loam
Structure—subangular or angular blocky or massive

Cleavmor Series

The Cleavmor series consists of shallow, well drained soils that formed in residuum derived from

welded tuff and argillite. These soils are on the crests and side slopes of hills. Slopes are 2 to 30 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls.

Typical pedon: Cleavmor very gravelly loam, 8 to 30 percent slopes, in an area of the Cleavmor-Ebic-Blackleg association:

A—0 to 4 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium and many fine and very fine roots; few medium and common fine and very fine tubular pores; 30 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear smooth boundary. (3 to 6 inches thick)

AB—4 to 9 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium and common fine and very fine roots; few medium and common fine and very fine tubular pores; 45 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (4 to 7 inches thick)

Btk—9 to 15 inches; grayish brown (10YR 5/2) extremely gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; few fine and very fine roots; few fine and common very fine tubular pores; common moderately thick clay skins on faces of peds and lining pores; common fine lime seams; 70 percent pebbles and channers; common fine strongly effervescent lime seams; noneffervescent matrix; mildly alkaline (pH 7.8); clear smooth boundary. (4 to 7 inches thick)

R—15 inches; argillite.

Type location: Elko County, Nevada; about 4 miles northeast of Rowland, about 800 feet east and 1,800 feet north of the southwest corner of sec. 11, T. 47 N., R. 56 E.; north latitude of 41 degrees, 56 minutes, 46 seconds; west longitude of 115 degrees, 37 minutes, 28 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist in places in winter and spring

Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 14 to 20 inches, including the argillic horizon

Depth to bedrock: 14 to 20 inches

A horizon:
- Chroma—2 or 3 dry or moist
- Structure—granular or subangular blocky

Btk horizon:
- Chroma—2 or 3 dry or moist
- Texture—very gravelly or extremely gravelly clay loam
- Clay content—27 to 35 percent
- Content of rock fragments—50 to 70 percent, mainly pebbles and channers
- Segregated lime—few to many filaments or seams

Connel Series

The Connel series consists of very deep, well drained soils that formed in loess and a component of volcanic ash over alluvium derived from mixed rock sources. These soils are on alluvial fans, stream terraces, fan piedmont remnants, fan skirts, and inset fans. Slopes are 0 to 4 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Camborthids.

Typical pedon: Connel loam, 0 to 2 percent slopes, in an area of the Bloor-Connel-Kelk association:

A1—0 to 3 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular and interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (2 to 4 inches thick)

A2—3 to 7 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate very thin and thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine vesicular and interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 6 inches thick)

Bw—7 to 11 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 15 inches thick)

Bq—11 to 20 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic;

common very fine and fine and few coarse and medium roots; common very fine tubular pores; 30 to 40 percent weak durinodes 10 to 20 millimeters in diameter; 10 percent pebbles; weak continuous silica cementation; moderately alkaline (pH 8.0); clear wavy boundary. (5 to 10 inches thick)

2Bqk—20 to 34 inches; very pale brown (10YR 7/3) extremely gravelly loamy sand, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine tubular pores; 5 percent weak durinodes 10 to 20 millimeters in diameter; 60 percent pebbles; 10 to 15 percent weak silica cementation; moderately alkaline (pH 8.0); clear irregular boundary. (0 to 14 inches thick)

3Ck—34 to 60 inches; very pale brown (10YR 7/3) extremely gravelly coarse sand, brown (10YR 5/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 70 percent pebbles and 5 percent cobbles; lime coatings on the underside of some pebbles; moderately alkaline (pH 8.0).

Type location: Elko County, Nevada; about 10 miles southeast of Elko, about 2,000 feet west and 530 feet north of the southeast corner of sec. 14, T. 33 N., R. 56 E.; north latitude of 40 degrees, 44 minutes, 20 seconds; west longitude of 115 degrees, 37 minutes, 46 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to unconformable gravel and sand: 20 to 35 inches

Depth to silica cementation: 10 to 20 inches

Depth to carbonates: 18 to 30 inches

Control section: Clay content—12 to 18 percent in the upper part and 2 to 8 percent in the lower part; texture—loam or very fine sandy loam with 15 to 50 percent fine sand or coarser sand in the upper part and very gravelly or extremely gravelly coarse sand, loamy coarse sand, loamy sand, or sand in the lower part; content of rock fragments—less than 15 percent in the upper part and 40 to 80 percent in the lower part

A horizon:
- Hue—10YR or 2.5Y
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate very thin to thick platy or subangular blocky or massive
- Reaction—neutral to moderately alkaline

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—very fine sandy loam, loam, or silt loam
- Structure—angular or subangular blocky or prismatic
- Reaction—mildly alkaline or moderately alkaline

Bq horizon (if it occurs):
- Reaction—moderately alkaline to very strongly alkaline

2Bqk and 3Ck horizons:
- Hue—variable, reflecting lithochromic colors of the mineral grains
- Value—variable, reflecting lithochromic colors of the mineral grains
- Chroma—1 to 4
- Texture—very gravelly or extremely gravelly sand, coarse sand, loamy coarse sand, or loamy sand
- Clay content—2 to 8 percent
- Content of rock fragments—40 to 80 percent pebbles and 0 to 20 percent cobbles
- Reaction—moderately alkaline to very strongly alkaline
- Effervescence—slightly effervescent or strongly effervescent
- Calcium carbonate equivalent—less than 5 percent in the part of the Bqk and 3Ck horizons within a depth of 40 inches
- Other features—the Bqk horizon has weak continuous silica cementation, and some parts of the Bqk and 3Ck horizons in some pedons are more than 20 percent durinodes in a brittle matrix with discontinuous cementation

As it occurs in this survey area, this series is a taxadjunct because it does not have the slightly effervescent to strongly effervescent matrix in the 2Bk and 3Ck horizons that is typical of the Connel series. This difference does not affect use and management.

Cotant Series

The Cotant series consists of shallow, well drained soils that formed in residuum derived from welded tuff and rhyolite. These soils are on hills, on mountains, and in rock-core areas on fan piedmont remnants. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls

Typical pedon: Cotant very cobbly clay loam, 15 to 30

percent slopes, in an area of the Cotant-McIvey-Shively association:

A—0 to 3 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak medium and thick platy structure; soft, very friable, sticky and plastic; common fine roots; many fine interstitial and common medium vesicular pores; 30 percent cobbles and 10 percent stones; mildly alkaline (pH 7.6); clear smooth boundary. (2 to 5 inches thick)

Bt1—3 to 12 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure; hard, very firm, very sticky and very plastic; common medium and fine roots; common fine and very fine tubular pores; continuous thick clay films on faces of peds and lining pores; mildly alkaline (pH 7.4); gradual wavy boundary. (4 to 12 inches thick)

Bt2—12 to 19 inches; yellowish brown (10YR 5/4) clay, dark brown (10YR 4/3) moist; moderate fine and medium prismatic structure parting to moderate medium and fine angular blocky; hard, firm, very sticky and very plastic; common fine and medium roots concentrated along vertical faces of peds; common medium and fine tubular pores; 10 percent pebbles; many moderately thick clay films on faces of peds and lining pores; mildly alkaline (pH 7.8); gradual wavy boundary. (5 to 13 inches thick)

Cr1—19 to 31 inches; light yellowish brown (10YR 6/4), weathered rhyolite, dark yellowish brown (10YR 4/4) moist; few medium and fine roots along weak fracture planes; common thick clay films lining fracture planes; moderately alkaline (pH 8.0); clear smooth boundary. (5 to 12 inches thick)

Cr2—31 inches; light gray (10YR 7/2) and yellowish brown (10YR 5/4), fractured and weathered rhyolite; few very fine roots along fracture planes.

Type location: Elko County, Nevada; about 7 miles east of North Fork, about 1 mile southwest of the road crossing Beaver Creek, about 700 feet east and 2,000 feet south of the northwest corner of sec. 30, T. 42 N., R. 56 E.; north latitude of 41 degrees, 30 minutes, 16 seconds; west longitude of 115 degrees, 42 minutes, 22 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches, including the upper part of the argillic horizon

Thickness of the solum and depth to paralithic contact: 12 to 20 inches

Reaction: Neutral or mildly alkaline

A horizon:
- Chroma—2 or 3
- Structure—thin to thick platy or weak medium subangular blocky

Bt horizon:
- Value—4 to 6 dry, 3 to 5 moist; 4 or 5 dry and 3 moist in the upper part
- Chroma—2 to 4, but 4 is restricted to the lower part
- Texture—dominantly clay, but gravelly clay in some parts of the horizon
- Clay content—40 to 60 percent
- Content of rock fragments—generally 0 to 15 percent, mainly pebbles, but as much as 25 percent in some parts of the horizon
- Structure—prismatic or angular blocky
- Other features—darker crushed matrix values common in the upper part of the horizon

Cr horizon:
- Clay films—none in some pedons

Cowgil Series

The Cowgil series consists of very deep, well drained soils that formed in colluvium derived from rhyolite or welded tuff. These soils are on hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Xerollic Haplargids

Typical pedon: Cowgil very cobbly sandy loam, 15 to 50 percent slopes, in an area of the Cowgil-Linkup-Rock outcrop association:

A—0 to 3 inches; grayish brown (10YR 5/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine and very fine interstitial and tubular pores; 30 percent pebbles, 10 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.8); abrupt smooth boundary. (2 to 4 inches thick)

Bt1—3 to 8 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown (10YR 4/3) moist; moderate fine granular structure; soft, very friable, sticky and plastic; many fine and very fine roots; many fine and very fine interstitial and tubular pores; few thin clay films on faces of peds; 25 percent pebbles, 10 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.8); clear smooth boundary. (2 to 5 inches thick)

Bt2—8 to 10 inches; pale brown (10YR 6/3) gravelly

sandy clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; many fine and very fine roots; many fine and very fine interstitial and tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 5 inches thick)

Bt3—10 to 30 inches; pale brown (10YR 6/3) very gravelly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common fine roots; many fine interstitial and tubular pores; common thin clay films on faces of peds and lining pores; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 20 inches thick)

2Bk—30 to 61 inches; very pale brown (10YR 7/3) very cobbly loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; common fine roots; many fine and medium interstitial pores; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; slightly effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 1,750 feet west and 750 feet south of the northeast corner of sec. 22, T. 40 N., R. 55 E.; north latitude of 41 degrees, 21 minutes, 04 seconds; west longitude of 115 degrees, 45 minutes, 34 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Combined thickness of the A and Bt horizons: 20 to 30 inches

Reaction: Mildly alkaline or moderately alkaline

Control section: Content of rock fragments—35 to 60 percent, mainly pebbles but includes cobbles and stones

A horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 or 3 moist

Bt horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—mainly gravelly or very gravelly sandy clay loam in the upper part and very gravelly or extremely gravelly sandy clay loam in the lower part; very gravelly loam or very gravelly clay loam in some pedons
- Clay content—20 to 35 percent
- Structure—subangular blocky or prismatic; massive in the lower part in some pedons
- Effervescence—noneffervescent or slightly effervescent in the lower part

2Bk horizon:
- Value—6 to 8 dry, 4 to 7 moist
- Chroma—2 to 4 dry, 3 to 5 moist
- Texture—mainly extremely gravelly coarse sand; very cobbly loamy sand in some pedons
- Clay content—2 to 10 percent
- Content of rock fragments—45 to 70 percent
- Effervescence—slightly effervescent or strongly effervescent
- Other features—no silica coatings on rock fragments in some pedons

Cowgil Variant

The Cowgil Variant consists of deep, well drained soils that formed in residuum and colluvium derived from welded tuff. These soils are on the side slopes of hills. Slopes are 30 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Xerollic Haplargids

Typical pedon: Cowgil Variant very cobbly loam, 30 to 50 percent slopes, in an area of the Cowgil Variant-Soughe association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine vesicular and few very fine tubular pores; 25 percent pebbles and 20 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (1 to 3 inches thick)

A2—2 to 5 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine tubular pores; 25 percent pebbles and 20 percent cobbles; neutral (pH 7.2); clear wavy boundary. (2 to 4 inches thick)

Bt—5 to 12 inches; light brownish gray (10YR 6/2) very cobbly loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, very friable, slightly sticky and plastic; common very fine and few fine and medium roots; many very fine and few fine tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles and 20

percent cobbles; neutral (pH 7.2); clear wavy boundary. (5 to 15 inches thick)

C1—12 to 23 inches; light brownish gray (2.5Y 6/2) very cobbly loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and few fine tubular pores; 30 percent pebbles and 20 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (9 to 19 inches thick)

C2—23 to 42 inches; light brownish gray (2.5Y 6/2) very gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive, hard, friable, nonsticky and nonplastic; few very fine and medium roots; common very fine and few fine tubular pores; 30 percent pebbles and 10 percent cobbles; neutral (pH 7.3); abrupt wavy boundary. (15 to 25 inches thick)

2R—42 inches; fractured, welded tuff.

Type location: Elko County, Nevada; about 20 miles southwest of Elko, about 2,400 feet west and 1,000 feet south of the northeast corner of sec. 8, T. 30 N., R. 54 E.; north latitude of 40 degrees, 30 minutes, 10 seconds; west longitude of 115 degrees, 55 minutes, 01 second

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 50 degrees F

Combined thickness of the A and Bt horizons: 10 to 20 inches

Depth to bedrock: 40 to 50 inches

Control section: Clay content—averages 20 to 27 percent; content of rock fragments—averages 35 to 60 percent, mainly pebbles and cobbles

A horizon:
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—platy or subangular blocky

Bt horizon:
- Value—3 or 4 moist
- Chroma—2 or 3
- Texture—very cobbly sandy clay loam or very cobbly loam
- Clay content—20 to 27 percent
- Content of rock fragments—averages 35 to 60 percent, mainly pebbles and cobbles

C horizon:
- Value—6 or 7 dry, 3 or 4 moist

Crooked Creek Series

The Crooked Creek series consists of very deep, poorly drained soils that formed in mixed alluvium derived from mixed rock sources. These soils are on flood plains along streams and on inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Cumulic Haplaquolls

Typical pedon: Crooked Creek silty clay loam, 0 to 2 percent slopes, in an area of the Crooked Creek-Crooked Creek, gravelly substratum-Ocala association:

A1—0 to 2 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; weak very fine and fine subangular blocky structure; hard, very friable, sticky and plastic; many very fine and fine roots; common very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (1 to 2 inches thick)

A2—2 to 5 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; weak fine and medium prismatic structure parting to moderate very fine to medium subangular blocky; hard, very friable, very sticky and very plastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 9 inches thick)

A3—5 to 9 inches; dark gray (10YR 4/1) silty clay, black (10YR 2/1) moist; weak fine and medium prismatic structure parting to moderate very fine to medium subangular blocky; very hard, very friable, very sticky and very plastic; many very fine and fine and common medium roots; many very fine tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 15 inches thick)

A4—9 to 12 inches; dark gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) moist; few fine distinct reddish yellow (7.5YR 6/6 moist) and brown (10YR 4/3 moist) mottles; weak fine and medium subangular blocky structure; very hard, very friable, very sticky and very plastic; many very fine and fine and common medium roots; many very fine tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 14 inches thick)

A5—12 to 18 inches; dark gray (10YR 4/1) clay, black (10YR 2/1) moist; few fine distinct light yellowish brown (10YR 6/4 moist) and dark brown (10YR 3/3 moist) mottles; moderate fine, medium, and coarse prismatic structure parting to strong fine, medium, and coarse angular blocky; very hard, friable, very

sticky and very plastic; many very fine and fine and common medium roots; many very fine and fine tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 6 inches thick)

A6—18 to 27 inches; dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist; many fine distinct brown (7.5YR 5/4 moist) and dark brown (10YR 3/3 moist) mottles; moderate medium and coarse prismatic structure parting to strong fine, medium, and coarse angular blocky; very hard, firm, very sticky and very plastic; common very fine and fine exped roots; many very fine and fine and common medium tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 9 inches thick)

A7—27 to 38 inches; dark gray (10YR 4/1) silty clay, black (10YR 2/1) moist; many fine distinct brown (10YR 5/3 moist) and dark brown (10YR 3/3 moist) mottles; weak coarse prismatic structure parting to moderate fine to coarse angular blocky; very hard, friable, very sticky and very plastic; few very fine to medium roots; many very fine and fine and common medium tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 11 inches thick)

C—38 to 60 inches; light gray (5Y 6/1), stratified clay loam and silty clay loam, dark gray (5Y 4/1) moist; many fine distinct brownish yellow (10YR 6/6 moist) and dark brown (10YR 3/3 moist) mottles; massive; hard, friable, very sticky and very plastic; mildly alkaline (pH 7.8).

Type location: Elko County, Nevada; about 34 miles north of Elko, about 2,300 feet east and 1,100 feet south of the northwest corner of sec. 28, T. 39 N., R. 55 E.; north latitude of 41 degrees, 14 minutes, 45 seconds; west longitude of 115 degrees, 47 minutes, 00 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years

Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: More than 24 inches

Reaction: Neutral to moderately alkaline

Control section: Clay content—averages 35 to 50 percent; content of rock fragments—averages 0 to 10 percent

A horizon:
- Value—3 to 5 dry, 1 to 3 moist
- Texture of the lower part—clay loam, silty clay loam, clay, or silty clay and thin lenses of loam or silt loam
- Chroma—1 or 2
- Structure—granular, subangular blocky, or prismatic parting to angular blocky
- Other features—faint or distinct mottles in most parts of the horizon

C horizon:
- Hue—10YR, 7.5YR, 5Y, or 2.5Y
- Value—3 to 6 dry, 3 to 5 moist
- Chroma—1 to 4
- Mottles—distinct or prominent; hue of 7.5YR to 5G
- Texture—clay loam, silty clay loam, or silt loam
- Clay content—25 to 40 percent
- Content of rock fragments—averages 0 to 10 percent
- Structure—subangular blocky or massive
- Other features—some pedons have as much as 75 percent rock fragments at a depth of more than 36 inches, but not consistently or continuously; a substratum of continuous, stratified extremely gravelly sand to very gravelly sandy loam at a depth of more than 40 inches in some pedons

Dacker Series

The Dacker series consists of well drained soils that are moderately deep to an indurated duripan. These soils formed in silty alluvium derived from mixed rock sources and a component of loess and volcanic ash. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 49 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Xerollic Durargids

Typical pedon: Dacker silt loam, 2 to 8 percent slopes, in an area of the Wieland-Gance-Dacker association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; strong very thin and thin platy structure; soft, very friable, sticky and plastic; common very fine roots; many very fine vesicular and interstitial pores; 10 percent pebbles; neutral (pH 7.0); abrupt wavy boundary. (2 to 4 inches thick)

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine interstitial and tubular pores; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (2 to 4 inches thick)

Bt1—7 to 16 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky; hard, friable, sticky and plastic;

common very fine and fine and few medium roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (4 to 13 inches thick)

Bt2—16 to 25 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, sticky and plastic; common very fine and few fine and medium roots; many very fine tubular pores; few thin clay films bridging mineral grains; 10 percent pebbles; moderately alkaline (pH 7.6); clear wavy boundary. (5 to 14 inches thick)

Bqk—25 to 31 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and plastic; common very fine and fine roots; common very fine tubular pores; 40 percent weak durinodes 15 to 30 millimeters thick; 10 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary. (5 to 12 inches thick)

Bqkm—31 to 52 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; continuously indurated in the upper 4 to 7 inches and alternately indurated or weakly silica and lime cemented in the lower part; continuous silica laminae ½ millimeter to 2 millimeters thick; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 25 miles north of Elko, about 2,300 feet east and 2,500 feet north of the southwest corner of sec. 25, T. 37 N., R. 54 E.; north latitude of 41 degrees, 04 minutes, 03 seconds; west longitude of 115 degrees, 50 minutes, 44 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Combined thickness of the A and Bt horizons: 17 to 25 inches

Depth to carbonates: 15 to 25 inches

Depth to a duripan: 20 to 35 inches

Control section: Clay content—averages 27 to 35 percent; content of rock fragments—5 to 35 percent pebbles

A horizon:
- Chroma—2 or 3
- Structure—moderate or strong platy or subangular blocky
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—silty clay loam or gravelly silty clay loam in the upper part and silt loam, silty clay loam, or gravelly silt loam in the lower part
- Clay content—27 to 35 percent in the upper part and 25 to 33 percent in the lower part
- Content of rock fragments—5 to 20 percent in the upper part and 5 to 35 percent in the lower part
- Structure—prismatic parting to subangular blocky; massive in the lower part in some pedons
- Consistence—mainly hard but slightly hard in some pedons
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—mainly silt loam but gravelly silt loam in some pedons
- Clay content—20 to 25 percent
- Content of rock fragments—5 to 35 percent pebbles
- Reaction—moderately alkaline or strongly alkaline
- Other features—20 to 50 percent durinodes 5 to 30 millimeters thick

Bqkm horizon:
- Value—7 or 8 dry, 5 to 7 moist
- Chroma—2 to 4
- Other features—commonly has lower layers of weak, strong, or indurated silica- and lime-cemented material of different thicknesses

Denay Series

The Denay series consists of very deep, well drained soils that formed in colluvium derived from limestone and a component of loess. These soils are on the side slopes of hills. Slopes are 30 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Calcixerolls

Typical pedon: Denay very gravelly loam, 30 to 50 percent slopes, in an area of the Denay-Siri-Bobs association:

A—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; 45 percent pebbles; slightly effervescent; mildly alkaline (pH 7.8); abrupt smooth boundary. (3 to 12 inches thick)

Bw—3 to 15 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and few fine roots; many very fine and few fine tubular pores; 35 percent pebbles; slightly effervescent; mildly alkaline (pH 7.8); clear smooth boundary. (8 to 12 inches thick)

Bk1—15 to 32 inches; brown (7.5YR 5/4) extremely gravelly loam, dark brown (7.5YR 4/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine and few fine tubular pores; 60 percent lime-coated pebbles; weak lime cementation; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (6 to 17 inches thick)

Bk2—32 to 60 inches; pink (7.5YR 7/4) extremely gravelly loam, brown (7.5YR 4/4) moist; massive; very hard, very firm, nonsticky and nonplastic; 85 percent lime-coated pebbles; weak lime cementation; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 4 miles northeast of Lee, about 530 feet south and 1,850 feet west of the northeast corner of sec. 29, T. 32 N., R. 57 E.; north latitude of 40 degrees, 38 minutes, 01 second; west longitude of 115 degrees, 34 minutes, 24 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 45 to 47 degrees F

Thickness of the mollic epipedon: 10 to 20 inches

Depth to the Bk horizon: 15 to 24 inches

Reaction: Mildly alkaline or moderately alkaline

Control section: Clay content—10 to 15 percent; content of rock fragments—60 to 75 percent, mainly pebbles

Other features: Effervescent throughout, except for the upper 2 to 3 inches of some pedons

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—1 or 2
- Structure—weak or moderate fine or medium subangular blocky or granular, weak medium or coarse prismatic, or massive

Bw horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Texture—very gravelly or extremely gravelly loam
- Content of rock fragments—35 to 60 percent
- Structure—weak or moderate fine or medium subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bk horizon:
- Hue—10YR or 7.5YR
- Value—5 to 8 dry, 4 to 7 moist
- Chroma—1 to 4
- Content of rock fragments—60 to 85 percent pebbles
- Texture (of the fraction less than 2 millimeters in size)—loam or silt loam
- Structure—subangular blocky or massive
- Reaction—mildly alkaline or moderately alkaline
- Consistence—soft to very hard when dry; very friable to very firm when moist

C horizon (if it occurs):
- Hue—10YR or 7.5YR
- Value—6 or 7 dry, 4 to 6 moist
- Chroma—2 to 4
- Content of rock fragments—70 to 85 percent pebbles
- Consistence—soft to very hard when dry; very friable to very firm when moist
- Reaction—mildly alkaline or moderately alkaline
- Other features—weak lime cementation in some pedons

Devilsgait Series

The Devilsgait series consists of very deep, very poorly drained soils that formed in silty alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Cumulic Haplaquolls

Typical pedon: Devilsgait silt loam, 0 to 2 percent slopes, in an area of the Ocala-Kelk-Devilsgait association:

A1—0 to 6 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; many fine distinct yellowish brown (10YR 5/6 moist) mottles; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary. (2 to 10 inches thick)

A2—6 to 8 inches; grayish brown (10YR 5/2) loamy fine

sand, very dark grayish brown (10YR 3/2) moist; common medium distinct brownish yellow (10YR 6/6 moist) mottles; single grain; loose, nonsticky and nonplastic; many very fine and fine and common medium roots; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary. (0 to 2 inches thick)

A3—8 to 13 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; common medium distinct yellowish brown (10YR 5/6 moist) mottles; moderate thin and medium platy structure; slightly hard, friable, sticky and plastic; many very fine and fine and few medium roots; few very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary. (3 to 10 inches thick)

A4—13 to 19 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; many fine distinct yellowish brown (10YR 5/6 moist) mottles; weak medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine and few medium roots; few very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (4 to 15 inches thick)

A5—19 to 28 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak fine and medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine and few medium roots; many very fine tubular pores; slightly effervescent; moderately alkaline (pH 8.1); clear wavy boundary. (0 to 15 inches thick)

C1—28 to 43 inches; light brownish gray (2.5Y 6/2) silt loam, very dark gray (10YR 3/1) moist; massive; soft, very friable, slightly sticky and slightly plastic; moderately alkaline (pH 7.9); clear wavy boundary. (5 to 15 inches thick)

C2—43 to 68 inches; light brownish gray (2.5Y 6/2), thin, alternating layers of stratified fine sandy loam, loamy fine sand, and silt loam, very dark gray (10YR 3/1) moist; massive; soft, very friable, nonsticky and nonplastic; mildly alkaline (pH 7.8).

Type location: Elko County, Nevada; about 24 miles northeast of Elko, about 2,200 feet east and 700 feet north of the southwest corner of sec. 36, T. 38 N., R. 57 E.; north latitude of 41 degrees, 08 minutes, 00 seconds; west longitude of 115 degrees, 29 minutes, 59 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years, mainly from late winter to early summer

Soil temperature: 47 to 50 degrees F

Thickness of the mollic epipedon: 24 to 50 inches

Reaction: Mainly mildly alkaline or moderately alkaline, but strongly alkaline in the upper part in some pedons

Control section: Clay content—20 to 35 percent; texture—mainly silt loam or silty clay loam, but thin strata of silty clay or loam in the lower part in some pedons

Other features: Some pedons have a gravelly substratum at a depth of more than 40 inches; some pedons have been drained by stream channel entrenchment; some pedons have a buried A horizon.

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 5 moist
Chroma—1 or 2
Texture—mainly silt loam or silty clay loam and thin strata of fine sand to silty clay

Dewar Series

The Dewar series consists of well drained soils that are shallow to an indurated duripan. These soils formed in loess and silty alluvium derived from mixed rock sources and a component of volcanic ash. The soils are on fan piedmont remnants. Slopes are 2 to 30 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durargids

Typical pedon: Dewar gravelly silt loam, 2 to 8 percent slopes, in an area of the Dewar-Gance-Wieland association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate very thin and thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine vesicular pores; 15 percent pebbles; moderately alkaline (pH 8.2); clear wavy boundary. (2 to 5 inches thick)

A2—3 to 5 inches; light brownish gray (10YR 6/2) gravelly silt loam, dark brown (10YR 3/3) moist; moderate thin and medium platy structure; slightly hard, very friable, sticky and plastic; common very fine and few fine roots; common very fine vesicular and tubular pores; 15 percent pebbles; moderately

alkaline (pH 8.4); abrupt wavy boundary. (0 to 3 inches thick)

Bt—5 to 11 inches; pale brown (10YR 6/3) gravelly silty clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine interstitial and tubular pores; few thin clay films on faces of peds; 20 percent pebbles and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (4 to 14 inches thick)

Btqk—11 to 17 inches; very pale brown (10YR 7/3) gravelly silt loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine to medium roots; common very fine interstitial and tubular pores; many weak durinodes 5 to 10 millimeters thick; few thin clay films on faces of peds; 10 percent pebbles and 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (0 to 8 inches thick)

Bqkm1—17 to 27 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/4) moist; moderate thick and very thick platelike layers; extremely hard, extremely firm; few roots along horizontal fractures; common very fine tubular pores; continuous brown (10YR 4/3) horizontal silica laminae ½ millimeter to 2 millimeters thick in the upper part and in horizontal bands throughout; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (6 to 11 inches thick)

Bqkm2—27 to 44 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/4) moist; massive; extremely hard, extremely firm; common very fine tubular pores; continuous brown (10YR 4/3) horizontal silica laminae 1 to 5 millimeters thick in the upper part; 40 percent pebbles, 5 percent cobbles, and 4 percent stones; violently effervescent; strongly alkaline (pH 8.6); gradual wavy boundary. (0 to 20 inches thick)

Bqkm3—44 to 60 inches; very pale brown (10YR 7/3), strong continuous silica- and lime-cemented duripan, brownish yellow (10YR 6/6) moist; massive; very hard, very firm, brittle when wet; many very fine interstitial pores; 50 percent pebbles, 10 percent cobbles, and 4 percent stones; violently effervescent; very strongly alkaline (pH 9.2).

Type location: Elko County, Nevada; about 20 miles northeast of Elko, about 175 feet east and 100 feet south of the recovered northwest corner of sec. 33, T. 37 N., R. 56 E.; north latitude of 41 degrees, 03 minutes, 02 seconds; west longitude of 115 degrees, 40 minutes, 43 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to an indurated duripan: 13 to 20 inches

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—moderate or strong very thin to thick platy or fine or medium granular
- Reaction—neutral to moderately alkaline

Bt horizon:
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 to 4 dry, 3 or 4 moist
- Texture—gravelly silty clay loam or gravelly clay loam
- Clay content—27 to 35 percent
- Content of rock fragments—15 to 30 percent, mainly pebbles
- Structure—weak to strong fine to coarse subangular blocky
- Reaction—neutral to moderately alkaline

Btqk horizon (if it occurs):
- Clay content—15 to 35 percent
- Durinodes—less than 30 percent, weak or very weak

Bqkm horizon:
- Structure—massive or moderately thick or very thick platelike layers
- Cementation—in some pedons alternately strongly cemented or discontinuously indurated below the duripan
- Other features—in some pedons a 1- to 3-inch zone of degraded duripan material along the upper boundary

Donna Series

The Donna series consists of well drained soils that are moderately deep to a duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess with a high content of volcanic ash. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Very fine, montmorillonitic, frigid Abruptic Aridic Durixerolls

Typical pedon: Donna gravelly loam, 2 to 8 percent slopes, in an area of the Donna-Stampede-Gance association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular pores; 15 percent pebbles; neutral (pH 7.0); clear smooth boundary. (1 to 3 inches thick)

A2—2 to 6 inches; brown (10YR 5/3) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine interstitial and common fine tubular pores; 20 percent pebbles; neutral (pH 7.2); clear smooth boundary. (1 to 5 inches thick)

AB—6 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; common very fine interstitial pores; 5 percent pebbles and 5 percent cobbles; few thin clay films on faces of peds; neutral (pH 7.3); abrupt wavy boundary. (0 to 5 inches thick)

Bt—10 to 23 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist; strong medium prismatic structure; extremely hard, extremely firm, very sticky and very plastic; common very fine roots; common very fine interstitial pores; many stress surfaces; 10 percent pebbles; neutral (pH 7.3); abrupt wavy boundary. (3 to 13 inches thick)

Bqkm—23 to 33 inches; very pale brown (10YR 8/3), indurated duripan, pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm, brittle; continuous 2- to 5-millimeter silica laminar cap; slightly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary. (8 to 14 inches thick)

2Cqk—33 to 60 inches; very pale brown (10YR 7/3), stratified very gravelly sandy loam to loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; weak discontinuous silica and lime cementation; 45 percent pebbles; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 12 miles south of North Fork, about 900 feet east and 50 feet south of the northwest corner of sec. 25, T. 40 N., R. 43 E.; north latitude of 41 degrees, 20 minutes, 21 seconds; west longitude of 115 degrees, 50 minutes, 47 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches

Depth to a duripan: 20 to 36 inches

Control section: Clay content—60 to 70 percent; content of rock fragments—0 to 15 percent, mainly pebbles

Other features: An increase of 15 to 30 percent clay at the upper boundary of the Bt horizon

A horizon:
- Value—5 or 6 dry, 3 or 4 moist; 6 dry and 4 moist only in the upper 1 to 3 inches; after mixing, the upper 7 inches is darker than 5.5 dry and 3.5 moist
- Structure—weak to strong very thin to thick platy or very fine to coarse subangular blocky; massive in the upper 1 to 3 inches in some pedons
- Reaction—slightly acid or neutral

Bt horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4
- Structure—weak to strong medium or coarse prismatic parting to angular blocky; massive in places in the lower part
- Consistence—when dry, very hard or extremely hard
- Reaction—slightly acid or neutral

Bqm and Bqkm horizons:
- Reaction—neutral or mildly alkaline where the upper part has no carbonates; moderately alkaline or strongly alkaline in the calcareous parts
- Other features—commonly noncalcareous in the upper part, but few or common fine soft lime seams along fracture planes in some pedons

2Cqk horizon:
- Hue—10YR or 7.5YR
- Value—6 or 7 dry, 5 or 6 moist
- Chroma—3 to 5
- Reaction—mildly alkaline or moderately alkaline

Ebic Series

The Ebic series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from andesitic tuff and welded tuff. These soils are on plateaus and the side slopes and summits of hills. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Palexerolls

Typical pedon: Ebic gravelly loam, 2 to 15 percent slopes, extremely stony, in an area of the Chen-Ebic association:

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine to medium and few coarse roots; many very fine and fine and common medium tubular pores; 20 percent pebbles and 5 percent cobbles; neutral (pH 6.8); clear wavy boundary. (3 to 6 inches thick)

A2—4 to 10 inches; grayish brown (10YR 5/2) very gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium tubular pores; 25 percent pebbles and 10 percent cobbles; neutral (pH 6.8); abrupt smooth boundary. (4 to 6 inches thick)

Bt1—10 to 17 inches; brown (10YR 4/3) very cobbly clay, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; common very fine and few fine roots; few very fine and fine tubular pores; many stress surfaces and many thick clay skins lining pores; 35 percent pebbles, 20 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear wavy boundary. (4 to 8 inches thick)

Bt2—17 to 27 inches; yellowish brown (10YR 5/4) extremely cobbly clay, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; few very fine and fine tubular pores; common moderately thick clay skins on faces of peds and lining pores; 40 percent pebbles and 25 percent cobbles; neutral (pH 7.0); gradual wavy boundary. (6 to 11 inches thick)

R—27 inches; hard, fractured, welded tuff; discontinuous thin lime and silica coatings along fracture planes.

Type location: Elko County, Nevada; about 7 miles northwest of Jarbidge, about 800 feet south and 600 feet east of the northwest corner of sec. 13, T. 47 N., R. 57 E.; north latitude of 41 degrees, 58 minutes, 02 seconds; west longitude of 115 degrees, 29 minutes, 25 seconds

Range in Characteristics

Soil moisture: Usually moist until early summer; dry from mid-July through October

Soil temperature: 43 to 46 degrees F

Thickness of the mollic epipedon: 7 to 12 inches

Thickness of the solum and depth to bedrock: 20 to 30 inches

Control section: Clay content—averages 45 to 60 percent; content of rock fragments—50 to 75 percent (20 to 30 percent cobbles and stones and 25 to 45 percent pebbles)

Bt horizon:

Texture—very cobbly clay or extremely cobbly clay

Reaction—neutral or mildly alkaline, generally becoming more alkaline with increasing depth

Clay content—50 to 60 percent in the upper part and 40 to 50 percent in the lower part

Eboda Series

The Eboda series consists of moderately deep, well drained soils that formed in loess over residuum derived from weathered tuff, welded tuff, shale, sandstone, or conglomerate. These soils are on the side slopes of mountains, plateaus, and hills and in rock-core areas on fan piedmont remnants. Slopes are 2 to 50 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Fine-loamy, mixed, frigid Aridic Argixerolls

Typical pedon: Eboda loam, 4 to 15 percent slopes, in an area of the Igdell-Gance-Eboda association:

A1—0 to 3 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine and fine vesicular pores; 10 percent pebbles; neutral (pH 7.0); abrupt smooth boundary. (1 to 3 inches thick)

A2—3 to 9 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine and few fine continuous tubular pores; 5 percent pebbles; neutral (pH 7.0); clear smooth boundary. (5 to 7 inches thick)

Bt1—9 to 15 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; strong coarse subangular blocky structure parting to strong fine and medium subangular blocky; hard, friable, sticky and slightly plastic; common very fine and few fine roots; many very fine and few fine continuous tubular pores; few thin clay films on faces of peds

and lining pores; 10 percent pebbles; neutral (pH 7.2); clear smooth boundary. (2 to 10 inches thick)

Bt2—15 to 26 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong medium and coarse angular blocky; very hard, firm, sticky and plastic; few very fine roots; many very fine and few fine continuous tubular pores; common thin clay films on faces of peds and lining pores; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (9 to 19 inches thick)

Bt3—26 to 33 inches; light yellowish brown (10YR 6/4) sandy clay loam, brown (10YR 4/3) moist; strong medium and coarse subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots; many very fine and few fine continuous tubular pores; common thin clay films on faces of peds and bridging mineral grains; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (0 to 7 inches thick)

C—33 to 39 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium angular blocky structure; hard, friable, sticky and plastic; few very fine roots; many very fine and few fine continuous tubular pores; 30 percent pebbles; neutral (pH 7.2); clear wavy boundary. (3 to 10 inches thick)

Cr—39 inches; white (10YR 8/1), weathered tuff; massive; very hard; few very fine roots in fractures.

Type location: Elko County, Nevada; about 1,220 feet north and 1,575 feet west of the southeast corner of sec. 2, T. 35 N., R. 54 E.; north latitude of 40 degrees, 56 minutes, 47 seconds; west longitude of 115 degrees, 51 minutes, 30 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in places in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches, commonly including the upper part of the argillic horizon

Combined thickness of the A and Bt horizons: 19 to 33 inches

Reaction: Neutral or mildly alkaline

Depth to paralithic contact: 23 to 40 inches

Control section: Clay content—25 to 35 percent; content of rock fragments—5 to 15 percent, mainly pebbles

A1 horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—weak or moderate very thin to medium platy or fine and medium subangular blocky

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Structure—moderate or strong angular or subangular blocky and moderate prismatic in some parts in most pedons
- Texture—mainly loam or clay loam; less than 45 percent sand; sandy clay loam in the lower part in many pedons

C horizon:
- Hue—10YR, 2.5Y, or 5Y, generally reflecting the hue of the parent material
- Chroma—3 or 4
- Texture—gravelly sandy clay loam, gravelly clay loam, or gravelly loam
- Content of rock fragments—15 to 30 percent, mainly pebbles

Enko Series

The Enko series consists of very deep, well drained soils that formed in loamy alluvium weathered mainly from mixed rock sources and a component of loess and volcanic ash. These soils are on inset fans, fan aprons, fan piedmont remnants, partial ballenas, and fan skirts. Slopes are 0 to 30 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical pedon: Enko loam, 2 to 8 percent slopes, in an area of the Enko-Rad association:

A—0 to 4 inches; light brownish gray (2.5Y 6/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine vesicular and few very fine tubular pores; neutral (pH 7.0); clear smooth boundary. (2 to 7 inches thick)

Bw1—4 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine and medium prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine tubular pores; mildly alkaline (pH 7.4); clear wavy boundary. (6 to 13 inches thick)

Bw2—15 to 18 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine

and fine tubular pores; 10 percent weak durinodes; moderately alkaline (pH 8.4); clear irregular boundary. (0 to 13 inches thick)

Bqk1—18 to 25 inches; very pale brown (10YR 8/3 and 7/3) sandy loam, brown (10YR 5/3) moist; common fine distinct yellowish brown (10YR 5/6 moist) and common fine faint dark yellowish brown (10YR 4/4 moist) relict mottles; massive; hard, friable and firm, slightly sticky and slightly plastic; few very fine to medium roots; common very fine and fine tubular pores; 30 percent weak discontinuous silica cementation; few weak durinodes; few muscovite mica particles; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (5 to 12 inches thick)

Bqk2—25 to 60 inches; white (2.5Y 8/2) sandy loam, olive (5Y 5/3) moist; massive; hard, firm, brittle; common very fine tubular pores; few fine and medium lime filaments; strongly effervescent; weak continuous silica cementation; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 15 miles south of Elko, about 1,300 feet north and 60 feet east of the approximate southwest corner of sec. 29, T. 33 N., R. 56 E.; north latitude of 40 degrees, 42 minutes, 44 seconds; west longitude of 115 degrees, 41 minutes, 51 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 49 to 52 degrees F

Combined thickness of the A and Bw horizons: 12 to 30 inches

Depth to weak continuous cementation: 14 to 30 inches

Control section: Clay content—10 to 18 percent; content of rock fragments—0 to 15 percent pebbles

Other features: In some pedons a sandy substratum or a substratum containing gypsum crystals is at a depth of more than 40 inches; some pedons have a noneffervescent Bq horizon above the Bqk horizon.

A horizon:
- Hue—10YR or 2.5Y
- Value—3 or 4 moist; commonly 6 or 7 dry, but 5 dry in some pedons
- Chroma—2 or 3
- Structure—very fine or fine granular, very thin to medium platy, or massive
- Reaction—neutral to moderately alkaline

Bw horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—mainly loam, fine sandy loam, or sandy loam; strata of silt loam or clay loam in the upper part in some pedons
- Structure—prismatic, angular or subangular blocky, or massive
- Consistence—slightly sticky or sticky, slightly plastic or plastic
- Reaction—neutral to moderately alkaline, becoming more alkaline with increasing depth
- Carbonates—calcareous in the lower part in some pedons

Bqk horizon:
- Hue—10YR, 2.5Y, or 5Y
- Value—4 to 7 moist
- Chroma—1 to 4 dry, 2 to 4 moist
- Texture—loam, sandy loam, or fine sandy loam
- Silica cementation—in some pedons layers of weak continuous silica cementation 10 to 40 inches thick; in others layers of 20 to 50 percent durinodes or 20 to 75 percent weak discontinuous silica cementation
- Reaction—mildly alkaline to strongly alkaline, becoming more alkaline with increasing depth
- Other features—common relict iron mottles or mica particles in many pedons

Fulstone Series

The Fulstone series consists of well drained soils that are shallow to an indurated duripan. These soils formed in alluvium derived from mixed rock sources. The soils are on very old fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 7 inches, and the mean annual temperature is about 51 degrees F.

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids

Typical pedon: Fulstone gravelly loam, 2 to 8 percent slopes, in an area of the Fulstone-Hunnton association:

A—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; slightly hard, very friable, sticky and slightly plastic; many very fine and common fine and medium roots; many very fine and fine vesicular and few very fine tubular pores; 15 percent pebbles; neutral (pH 7.2); abrupt smooth boundary. (3 to 4 inches thick)

Bt1—3 to 6 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine and

medium roots; common very fine and few fine tubular pores; common thin clay films as colloid stains and mineral grains, as bridges holding mineral grains together, and lining pores; 10 percent pebbles; neutral (pH 7.2); abrupt smooth boundary. (3 to 8 inches thick)

Bt2—6 to 15 inches; brown (7.5YR 4/4) clay inped, brown (7.5YR 4/2) exped organic stains, brown (7.5YR 4/4) moist inped, brown (7.5YR 4/2) moist exped organic stains; strong medium prismatic structure; very hard, very firm, very sticky and very plastic; common very fine and fine exped roots and few very fine inped roots; few very fine tubular pores; many stress surfaces; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (2 to 9 inches thick)

Bt3—15 to 19 inches; yellowish brown (10YR 5/6) very gravelly clay, dark yellowish brown (10YR 4/6) moist; moderate fine subangular blocky structure; hard, firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; many thick clay films bridging mineral grains and on faces of peds; common thick silica coatings on pebbles; 35 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary. (0 to 4 inches thick)

Bqkm—19 to 34 inches; indurated duripan; extremely hard, extremely firm; laminar cap 3 millimeters thick. (3 to 15 inches thick)

2C—34 to 57 inches; reddish yellow (7.5YR 6/6) extremely gravelly sandy clay, strong brown (7.5YR 5/6) moist; massive; hard, firm, very sticky and very plastic; few very fine interstitial pores; violently effervescent within 3 inches of the duripan, strongly effervescent in a few small pockets at a depth of more than 3 inches from the duripan; 60 percent pebbles, 10 percent cobbles, and 15 percent stones; mildly alkaline (pH 7.6).

Type location: Elko County, Nevada; about 35 miles northwest of Wells and 1 mile north of the Marys River, about 900 feet south and 2,000 feet west of the northeast corner of sec. 2, T. 42 N., R. 59 E.; north latitude of 41 degrees, 33 minutes, 53 seconds; west longitude of 115 degrees, 16 minutes, 18 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 53 to 59 degrees F

Depth to an indurated duripan: 14 to 20 inches

Other features: Some pedons have a thin Bt3 horizon of very gravelly clay or clay loam.

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—1 to 3
- Reaction—slightly acid or neutral

Bt horizon:
- Hue—7.5YR or 10YR
- Value—4 or 5 dry
- Chroma—2 to 6
- Clay content—45 to 60 percent
- Content of rock fragments—generally free of rock fragments, but in some pedons as much as 20 percent pebbles or cobbles because of mixing by burrowing animals
- Reaction—neutral to moderately alkaline

Bqkm horizon:
- Cementation—mostly continuous cementation, but broken in places by burrowing animals

2C horizon (if it occurs):
- Content of rock fragments—50 to 85 percent pebbles and cobbles
- Reaction—mildly alkaline to strongly alkaline
- Other features—0 to 40 percent durinodes; horizons of extremely gravelly sandy clay below the duripan in clay substratum phases in some pedons

Gance Series

The Gance series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on fan piedmont remnants. Slopes are 2 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Durixerollic Haplargids

Typical pedon: Gance very cobbly loam, 15 to 30 percent slopes, in an area of the Dewar-Gance-Wieland association:

A—0 to 4 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate very thin and thin platy structure; soft, very friable, sticky and plastic; many very fine roots; many very fine vesicular pores; 25 percent pebbles and 30 percent cobbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (2 to 10 inches thick)

Bt1—4 to 8 inches; grayish brown (10YR 5/2) very gravelly clay, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and very plastic; many very fine and fine and few medium

roots; many very fine tubular pores; 25 percent pebbles and 10 percent cobbles; many stress surfaces and many thin clay films lining pores; mildly alkaline (pH 7.4); clear wavy boundary. (3 to 7 inches thick)

Bt2—8 to 12 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 4/3) moist; strong fine and medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine and few medium roots; common very fine tubular pores; 40 percent pebbles and 10 percent cobbles; many stress surfaces and many moderately thick clay films lining pores; mildly alkaline (pH 7.4); clear wavy boundary. (0 to 8 inches thick)

Bt3—12 to 17 inches; yellowish brown (10YR 5/4) very gravelly sandy clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; 30 percent pebbles and 15 to 20 percent cobbles; many stress surfaces and many moderately thick clay films lining pores; mildly alkaline (pH 7.4); clear wavy boundary. (0 to 12 inches thick)

Btk—17 to 29 inches; very pale brown (10YR 7/4) extremely cobbly sandy clay, yellowish brown (10YR 5/4) moist; moderate fine angular blocky structure; hard, very friable, sticky and plastic; few very fine and fine roots; common very fine tubular pores; 40 percent pebbles and 30 percent cobbles; many stress surfaces and many thin clay films lining pores; common very thin soft lime filaments; moderately alkaline (pH 8.0); abrupt wavy boundary. (0 to 2 inches thick)

Bqk1—29 to 42 inches; white (10YR 8/2) extremely cobbly sandy loam, very pale brown (10YR 7/3) moist; massive; hard, brittle, nonsticky and nonplastic; few very fine tubular pores; weak continuous silica and lime cementation; many thick soft lime masses; 40 percent pebbles and 40 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear irregular boundary. (7 to 33 inches thick)

Bqk2—42 to 55 inches; very pale brown (10YR 7/3) extremely gravelly coarse sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, brittle, nonsticky and slightly plastic; few very fine tubular pores; weak continuous silica and lime cementation; many soft lime masses; 70 percent pebbles and 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (0 to 22 inches thick)

Bqk3—55 to 68 inches; very pale brown (10YR 7/3) extremely gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, brittle, slightly sticky and slightly plastic; weak continuous silica and lime cementation; common soft lime masses; 50 percent pebbles and 20 percent cobbles; strongly effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 19 miles north of Elko, about 1,200 feet north and 750 feet east of the southwest corner of sec. 14, T. 37 N., R. 56 E.; north latitude of 41 degrees, 05 minutes, 31 seconds; west longitude of 115 degrees, 37 minutes, 47 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; moist in some part from late October to early June

Soil temperature: 47 to 52 degrees F

Depth to the base of the Bt horizon: 20 to 32 inches

Depth to carbonates: 13 to 32 inches

Depth to the Bqk horizon, which has weak continuous silica cementation: 25 to 38 inches

Control section: Clay content—averages 35 to 55 percent; content of rock fragments—averages 35 to 75 percent

Other features: Some pedons have a noncemented horizon below the Bqk horizon, a Bk horizon between the Btk and Bqk horizons, or a buried Bt horizon at a depth of more than 56 inches.

A horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—very thin to medium platy or granular
- Reaction—neutral to moderately alkaline

Bt1 horizon:
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—gravelly or very gravelly clay or clay loam
- Clay content—35 to 45 percent
- Content of rock fragments—20 to 55 percent, mainly pebbles but as much as 10 percent cobbles
- Structure—very fine to medium subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bt horizon (lower part):
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—very gravelly clay, extremely gravelly clay, very gravelly sandy clay, or extremely cobbly sandy clay
- Clay content—40 to 55 percent
- Content of rock fragments—35 to 75 percent, mainly pebbles but as much as 20 percent cobbles

Structure—fine or medium subangular or angular blocky or fine to coarse prismatic
Reaction—mildly alkaline or moderately alkaline, becoming more alkaline with increasing depth

Bqk horizon:
Value—6 to 8 dry, 5 to 7 moist
Chroma—2 to 4
Texture—very gravelly, extremely gravelly, or extremely cobbly sandy loam, coarse sandy loam, or loam
Content of rock fragments—35 to 80 percent, of which as much as 40 percent is cobbles
Cementation—weak continuous silica cementation
Reaction—moderately alkaline or strongly alkaline
Effervescence—strongly effervescent or violently effervescent

Gando Series

The Gando series consists of shallow, well drained soils that formed in residuum and colluvium derived from chert, argillite, shale, quartzite, rhyolite, or tuffaceous sandstone. These soils are on mountain crests and side slopes. Slopes are 8 to 30 percent. The mean annual precipitation is about 16 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Haploxerolls

Typical pedon: Gando very gravelly loam, 15 to 30 percent slopes, in an area of the Bullump-Quarz-Gando association:

A1—0 to 2 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; soft, very friable, slightly sticky and nonplastic; common very fine roots; common very fine interstitial pores; 40 percent pebbles and 2 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 7 inches thick)

A2—2 to 9 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine tubular pores; 45 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 8 inches thick)

Bk—9 to 17 inches; pale brown (10YR 6/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine and very fine roots; few very fine tubular pores; thin lime pendants on pebbles; 60 percent pebbles and 5 percent cobbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary. (4 to 10 inches thick)

R—17 to 22 inches; very fractured tuffaceous sandstone; lime pendants along fracture planes.

Type location: Elko County, Nevada; about 8 miles northeast of Elko, about 1,000 feet south and 1,900 feet west of the northeast corner of sec. 26, T. 35 N., R. 53 E.; north latitude of 40 degrees, 53 minutes, 43 seconds; west longitude of 115 degrees, 37 minutes, 44 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early June to mid-October, moist from winter to early spring
Soil temperature: 43 to 46 degrees F
Thickness of the mollic epipedon: 7 to 14 inches
Depth to bedrock: 10 to 20 inches
Depth to carbonates: 7 to 14 inches
Reaction: Mildly alkaline or moderately alkaline
Control section: Clay content—10 to 20 percent; content of rock fragments—50 to 70 percent, mainly pebbles

A horizon:
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 or 3
Structure—moderate very fine to medium granular, weak or moderate very thin to medium platy, or weak very fine angular blocky to moderate medium subangular blocky

Bk horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4
Structure—subangular blocky or massive
Consistence—when dry, soft or slightly hard; when moist, slightly sticky or sticky and slightly plastic or plastic
Texture—extremely gravelly loam, extremely gravelly sandy loam, or very gravelly loam
Content of rock fragments—50 to 70 percent, mainly pebbles but as much as 20 percent cobbles
Effervescence—slightly effervescent to strongly effervescent

Glean Series

The Glean series consists of deep, well drained soils that formed in colluvium derived from welded tuff. These soils are on plateaus. Slopes are 8 to 15 percent. The mean annual precipitation is about 14

inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical pedon: Glean gravelly silt loam, 8 to 15 percent slopes, in an area of the Cleavage-Glean-Inpendence association:

A1—0 to 7 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, black (10YR 2/1) moist; moderate medium granular structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few coarse and medium roots; many very fine and common fine tubular pores; 25 percent pebbles; neutral (pH 6.8); clear smooth boundary. (1 to 7 inches thick)

A2—7 to 16 inches; very dark grayish brown (10YR 3/2) very gravelly loam, black (10YR 2/1) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and common fine tubular pores; 50 percent pebbles and 5 percent cobbles; neutral (pH 6.6); clear wavy boundary. (2 to 9 inches thick)

A3—16 to 25 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and common fine tubular pores; 50 percent pebbles and 10 percent cobbles; neutral (pH 6.6); gradual wavy boundary. (9 to 14 inches thick)

C1—25 to 38 inches; yellowish brown ((10YR 5/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and few fine tubular pores; 45 percent pebbles and 15 percent cobbles; neutral (pH 6.6); gradual wavy boundary. (6 to 20 inches thick)

C2—38 to 60 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; few very fine and fine roots; common very fine and few fine tubular pores; 50 percent pebbles and 10 percent cobbles; neutral (pH 6.6).

R—60 inches; welded tuff.

Type location: Elko County, Nevada; about 7.5 miles south of Murphy Hot Springs, Idaho, about 1,500 feet north and 1,000 feet west of the southeast corner of sec. 35, T. 47 N., R. 58 E.; north latitude of 41 degrees, 54 minutes, 58 seconds; west longitude of 115 degrees, 22 minutes, 50 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist in places in winter and spring

Soil temperature: Averages 43 to 47 degrees F; above 41 degrees F from April 1 to April 15 and above 47 degrees F from about April 15 to November 1

Reaction: Slightly acid or neutral

Depth to bedrock: 40 to 70 inches

Control section: Clay content—8 to 18 percent; content of rock fragments—averages 40 to 70 percent pebbles, cobbles, stones, and boulders, the content increasing with increasing depth

A horizon:
- Value—3 to 5 dry
- Chroma—1 or 2
- Structure—granular or subangular blocky
- Other features—organic matter content ranging mainly from 1 to 3 percent but decreasing regularly with increasing depth to less than 1 percent between depths of 22 and 39 inches

C horizon:
- Hue—10YR, 7.5YR, or 2.5Y
- Value—5 or 6 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—very gravelly or very cobbly sandy loam or loam
- Content of rock fragments—averages 40 to 70 percent

Gochea Series

The Gochea series consists of very deep, well drained soils that formed in colluvium and alluvium derived from mixed rock sources and a component of loess. These soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine-loamy, mixed, frigid Durargidic Argixerolls

Typical pedon: Gochea loam, 4 to 15 percent slopes, in an area of the Gochea-Donna-Stampede association:

A1—0 to 3 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine and very fine vesicular and interstitial pores;

neutral (pH 7.2); abrupt smooth boundary. (2 to 5 inches thick)

A2—3 to 7 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, sticky and plastic; many fine and very fine roots; many fine and very fine interstitial pores; mildly alkaline (pH 7.4); clear smooth boundary. (2 to 6 inches thick)

Bt1—7 to 12 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many fine and very fine roots; common fine interstitial pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (4 to 8 inches thick)

Bt2—12 to 21 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, friable, sticky and plastic; common fine roots; common fine interstitial and tubular pores; many moderately thick clay films on faces of peds and lining pores; 20 percent pebbles; mildly alkaline (pH 7.8); gradual wavy boundary. (7 to 15 inches thick)

Bq1—21 to 41 inches; light yellowish brown (10YR 6/4) sandy loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; 40 percent durinodes; mildly alkaline (pH 7.6); gradual wavy boundary. (12 to 18 inches thick)

2Bq2—41 to 60 inches; light yellowish brown (10YR 6/4) extremely gravelly sand and variegated sand grains, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many medium and coarse interstitial pores; 70 percent pebbles; about 70 percent weak discontinuous silica cementation; mildly alkaline (pH 7.8)

Type location: Elko County, Nevada; about 17 miles east of North Fork, about 2,200 feet west and 2,200 feet north of the southeast corner of sec. 1, T. 41 N., R. 57 E.; north latitude of 41 degrees, 28 minutes, 23 seconds; west longitude of 115 degrees, 29 minutes, 10 seconds

Range in Characteristics

Soil moisture. Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring

Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 10 to 15 inches, including the upper part of the argillic horizon

Depth to the Bq horizon: 18 to 20 inches

Depth to the 2Bq2 horizon: 40 to 60 inches

Depth to bedrock: 40 to at least 60 inches

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—platy, granular, or subangular blocky
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Texture—gravelly clay loam, gravelly sandy clay loam, or clay loam
- Clay content—25 to 35 percent
- Content of rock fragments—5 to 35 percent, mainly pebbles
- Structure—subangular or angular blocky

Bq horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—mainly sandy loam or gravelly loam; cobbly loam or cobbly sandy loam in some pedons
- Content of rock fragments—0 to 30 percent
- Durinodes—20 to 80 percent or as much as 50 percent weak discontinuous cementation
- Reaction—mildly alkaline to strongly alkaline

2Bq horizon:
- Texture—very gravelly or extremely gravelly sand
- Clay content—2 to 5 percent
- Content of rock fragments—50 to 75 percent pebbles
- Silica cementation—as much as 80 percent weak discontinuous silica cementation
- Secondary carbonates—the abundance of lime coatings on rock fragments ranging from none to many
- Effervescence—none or slight

Gollaher Series

The Gollaher series consists of very shallow, well drained soils that formed in residuum and colluvium derived from limestone. These soils are on mountain crests and side slopes. Slopes are 20 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Xerorthents

Typical pedon: Gollaher very gravelly loam, 30 to 75 percent slopes, in an area of the Gollaher-Cleavage-Hapgood association:

A1—0 to 1 inch; grayish brown (10YR 5/2) extremely gravelly loam, dark brown (10YR 4/3) moist; moderate very thin to medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine to medium roots; many very fine and fine vesicular and few very fine tubular pores; 85 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (1 to 2 inches thick)

A2—1 to 4 inches; grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 4/3) moist; moderate very thin to medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine to medium roots; many very fine and fine vesicular and few very fine tubular pores; 45 percent pebbles; common fine lime pendants on pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (0 to 3 inches thick)

Bk—4 to 7 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and slightly plastic; many very fine to medium roots; common very fine and fine tubular pores; 45 percent pebbles and 5 percent cobbles; common thick lime pendants on the underside of pebbles; strongly effervescent; moderately alkaline (pH 8.4). (3 to 6 inches thick)

R—7 inches; highly fractured limestone.

Type location: Elko County, Nevada; about 32 miles northwest of Wells and 1 mile north of the barite mine at about 1,500 feet north and 1,500 feet west of the southeast corner of sec. 12, T. 42 N., R. 60 E.; north latitude of 41 degrees, 32 minutes, 33 seconds; west longitude of 115 degrees, 08 minutes, 00 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring

Soil temperature: 43 to 47 degrees F

Depth to bedrock: 4 to 10 inches

Reaction: Mildly alkaline or moderately alkaline

Control section: Clay content—15 to 27 percent; texture—very gravelly or extremely gravelly loam; content of rock fragments—45 to 75 percent, mainly pebbles but as much as 5 percent cobbles

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate very thin to thick platy
Other features—common to continuous thin or medium lime pendants on the underside of rock fragments

Bk horizon:
Value—3 or 4 moist
Chroma—2 or 3
Calcium carbonate equivalent—40 to 60 percent by weight in the fraction less than 20 millimeters in size
Other features—common to continuous thin to thick lime pendants on the underside of rock fragments

Graley Series

The Graley series consists of shallow, well drained soils that formed in residuum and colluvium derived from mixed rock sources. These soils are on mountain crests, hill crests, and side slopes. Slopes are 2 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls

Typical pedon: Graley very gravelly loam, 4 to 15 percent slopes, in an area of the Chen-Graley-Quarz association:

A1—0 to 3 inches; dark grayish brown (10YR 4/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and common fine interstitial pores; 35 percent pebbles; neutral (pH 7.2); clear wavy boundary. (1 to 7 inches thick)

A2—3 to 7 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few fine roots; common very fine and few fine interstitial and tubular pores; 40 percent pebbles; neutral (pH 7.2); clear wavy boundary. (2 to 8 inches thick)

Bt1—7 to 11 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 4/3) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine and few fine roots; many very fine and few fine tubular pores; few thin clay films lining pores and on faces of peds; 40 percent pebbles; neutral (pH 7.3); clear wavy boundary. (3 to 4 inches thick)

Bt2—11 to 17 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine angular blocky structure; very hard, firm, very sticky

and very plastic; few very fine and fine roots; common very fine interstitial pores; few moderately thick clay films lining pores and on faces of peds; 45 percent pebbles; neutral (pH 7.3); abrupt wavy boundary. (0 to 6 inches thick)

R—17 inches; rhyolite.

Type location: Elko County, Nevada; about 24 miles north of Deeth, about 2,300 feet east and 1,500 feet north of the southwest corner of sec. 12, T. 40 N., R. 58 E.; north latitude of 41 degrees, 22 minutes, 07 seconds; west longitude of 115 degrees, 22 minutes, 35 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist in winter and spring

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches, not including the argillic horizon

Reaction: Neutral or mildly alkaline

Depth to bedrock: 14 to 20 inches

Control section: Clay content—35 to 45 percent; content of rock fragments—35 to 60 percent, mainly pebbles

A horizon:
- Value—4 or 5 dry
- Chroma—2 or 3

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—very gravelly clay loam or very gravelly clay
- Structure—angular or subangular blocky

Grina Series

The Grina series consists of shallow, well drained soils that formed in residuum weathered from siltstone, shale, tuff, and tuffaceous sandstone. These soils are on hills and in rock-core areas on fan piedmont side slopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical pedon: Grina silty clay loam, 30 to 50 percent slopes, in an area of the Hopeka-Grina-Izod association:

A1—0 to 2 inches; light brownish gray (2.5Y 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak thick and very thick platy structure; soft, very friable, sticky and plastic; few very fine and fine roots; many very fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (2 to 4 inches thick)

A2—2 to 7 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, sticky and very plastic; common very fine and fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (0 to 6 inches thick)

C1—7 to 12 inches; light gray (2.5Y 7/2) silty clay loam, brown (10YR 4/3) moist; massive; hard, friable, sticky and very plastic; common very fine and few medium roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (5 to 12 inches thick)

C2—12 to 18 inches; white (2.5Y 8/2) silty clay loam, light brownish gray (2.5Y 6/2) moist; weak very fine and fine angular blocky and some weak very thin and thin platelike rock structure; hard, friable, sticky and plastic; few very fine to medium roots; common very fine interstitial pores; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary. (0 to 7 inches thick)

Cr—18 to 35 inches; white (2.5Y 8/2), soft calcareous tuffaceous sandstone and shale, light gray (5Y 7/2) moist; massive parting to strong fine and medium angular blocky rock structure; hard, firm, brittle; few very fine to medium roots along some fracture planes; few fine gypsum threads; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 22 miles south of Elko, about 250 feet east and 2,100 feet north of the approximate southwest corner of sec. 35, T. 32 N., R. 55 E.; north latitude of 40 degrees, 36 minutes, 50 seconds; west longitude of 115 degrees, 45 minutes, 20 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Calcium carbonate equivalent: 20 to 40 percent by weight in the fraction less than 20 millimeters in size

Depth to paralithic contact: 14 to 20 inches

Control section: Clay content—20 to 35 percent where mixed; texture—loam, silt loam, or silty clay loam; content of rock fragments—0 to 15 percent where mixed

Other features: Some pedons have a thin Bk horizon

directly above the paralithic contact.

A horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Structure—very fine or fine granular, very thin to very thick platy or subangular blocky, or massive

C1 horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry
Chroma—2 or 3 dry
Structure—weak or moderate very fine to medium subangular blocky or massive
Effervescence—strongly effervescent or violently effervescent

C2 horizon (if it occurs):
Hue—10YR or 2.5Y
Value—7 or 8 dry, 5 to 7 moist
Chroma—2 to 4
Structure—weak or moderate very fine or fine angular blocky, very thin to thick platy, or massive

Cr horizon:
Hue—10YR to 5Y
Value—7 or 8 dry, 5 to 7 moist
Chroma—2 or 3
Consistence—soft sedimentary material that is hard to extremely hard when dry and firm or very firm when moist
Other features—precipitated secondary carbonates or gypsum in filaments or threads and iron-manganese stains are common along fracture planes

Hackwood Series

The Hackwood series consists of very deep, moderately well drained soils that formed in colluvium derived from mixed rock sources and a component of loess. These soils are on concave mountain side slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 18 inches, and the mean annual temperature is about 41 degrees F.

Taxonomic class: Fine-loamy, mixed Pachic Cryoborolls

Typical pedon: Hackwood silt loam, 15 to 30 percent slopes, in an area of the Arcia-Tusel-Hackwood association:

0i—1 inch to 0; aspen leaf litter. (0.5 inch to 4 inches thick)

A1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, black (10YR 2/1) moist; weak thick platy structure parting to moderate very fine granular; soft, very friable, nonsticky and nonplastic; many fine and medium roots; many very fine and fine interstitial pores; neutral (pH 6.8); clear wavy boundary. (2 to 12 inches thick)

A2—4 to 20 inches; grayish brown (10YR 5/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine and medium subangular blocky structure; soft, very friable, sticky and plastic; many fine and medium roots; many very fine and fine interstitial pores; neutral (pH 6.8); clear wavy boundary. (7 to 26 inches thick)

AC—20 to 30 inches; light brownish gray (10YR 6/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many fine interstitial pores; 15 percent pebbles; neutral (pH 6.8); clear wavy boundary. (0 to 12 inches thick)

2C—30 to 60 inches light brownish gray (2.5Y 6/2) very gravelly clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; common medium roots; many fine interstitial and tubular pores; very thin silt coatings lining pores; 40 percent pebbles; slightly acid (pH 6.4).

Type location: Elko County, Nevada; about 22 miles west of Jiggs, near Robinson Mountain, about 700 feet east and 2,300 feet south of the northwest corner of sec. 25, T. 28 N., R. 53 E.; north latitude of 40 degrees, 16 minutes, 48 seconds; west longitude of 115 degrees, 56 minutes, 58 seconds

Range in Characteristics

Soil moisture: Moist from late fall to summer; dry in September and October; additional moisture sometimes resulting from lateral water movement in the lower part of the control section or in the substratum
Average annual soil temperature: 38 to 44 degrees F
Average summer soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 16 to 35 inches
Depth to the 2C horizon: 30 to 49 inches
Reaction: Neutral or slightly acid, becoming more acid with increasing depth
Control section: Texture—typically silt loam, gravelly silt loam, or gravelly loam, but commonly very gravelly loam to very gravelly silty clay loam in the lower part; clay content—averages 18 to 30 percent; content of rock fragments—averages 15 to 35 percent, mainly pebbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist

Chroma—1 to 3 dry, 1 or 2 moist
Structure—platy, granular, or subangular blocky

2C horizon:
Hue—2.5Y or 10YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Other features—in the lower part of the horizon, pores lined with very thin silt coatings or uncoated sand grains; few fine distinct yellowish brown (10YR 5/6) mottles, dark yellowish brown (10YR 4/4) moist, in some pedons; and few manganese stains coating pebbles and lining pores in some pedons

Halleck Series

The Halleck series consists of very deep, poorly drained soils that formed in silty alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on axial stream flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Fine-silty, mixed (calcareous), frigid Cumulic Haplaquolls

Typical pedon: Halleck silt loam, 0 to 2 percent slopes, in an area of the Hussa-Halleck-Welsum association:

Ap—0 to 4 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; violently effervescent; moderately alkaline (pH 7.9); abrupt smooth boundary. (0 to 7 inches thick)

A1—4 to 9 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; strong fine subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine and few medium roots; common very fine interstitial pores; violently effervescent; moderately alkaline (pH 7.9); clear smooth boundary. (3 to 12 inches thick)

A2—9 to 17 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; common very fine and fine and few medium roots; common very fine interstitial and fine tubular pores; violently effervescent; moderately alkaline (pH 8.1); clear smooth boundary. (0 to 12 inches thick)

A3—17 to 36 inches; gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; few very fine to medium roots; common very fine interstitial and few fine tubular pores; violently effervescent; moderately alkaline (pH 8.1); clear smooth boundary. (0 to 25 inches thick)

A4—36 to 55 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; common medium distinct brown (10YR 4/3) mottles; massive; hard, firm, sticky and plastic; few very fine roots; common very fine interstitial pores; violently effervescent; moderately alkaline (pH 8.3); abrupt smooth boundary. (0 to 25 inches thick)

Cg—55 to 61 inches; greenish gray (5GY 6/1) clay loam, dark greenish gray (5GY 4/1) moist; few fine faint dark gray (5Y 4/1) mottles; massive; hard, firm, very sticky and very plastic; common very fine interstitial pores; violently effervescent; moderately alkaline (pH 8.3).

Type location: Elko County, Nevada; about 2 miles north of Lamoille, about 700 feet north and 2,200 feet west of the southeast corner of sec. 8, T. 33 N., R. 58 E.; north latitude of 40 degrees, 45 minutes, 14 seconds; west longitude of 115 degrees, 27 minutes, 31 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years, mainly from late winter through early summer
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 31 to 60 inches
Reaction: Mildly alkaline or moderately alkaline
Control section: Clay content—20 to 35 percent; texture—mainly silt loam or silty clay loam; sand fraction—less than 15 percent fine sand or coarser sand

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2 dry or moist
Other features—thin strata of clay loam or loam in the lower part of the horizon in some pedons; a buried A1 horizon in many pedons

C horizon:
Hue—5GY, 5Y, 2.5Y, or 10YR
Value—5 to 7 dry
Chroma—1 or 2
Texture—stratified loam to silty clay loam, dominantly clay loam or silty clay loam
Other features—a gravelly substratum or drained phase in some pedons

Hapgood Series

The Hapgood series consists of deep and very deep, well drained soils that formed in colluvium and residuum derived from volcanic rocks and a component of loess and volcanic ash. These soils are on mountain side slopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 16 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon: Hapgood very gravelly loam, 30 to 50 percent slopes, in an area of the Hapgood-Bullump-Gando association:

A1—0 to 8 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and few fine roots; common very fine interstitial pores; 35 percent pebbles; slightly acid (pH 6.5); clear smooth boundary. (0 to 8 inches thick)

A2—8 to 20 inches; grayish brown (10YR 5/2) very gravelly loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine to medium roots; common very fine tubular and few fine interstitial pores; 40 percent pebbles; slightly acid (pH 6.5); gradual wavy boundary. (4 to 42 inches thick)

AC—20 to 31 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial and tubular pores; 40 percent pebbles and 5 percent cobbles; slightly acid (pH 6.3); clear wavy boundary. (0 to 12 inches thick)

C—31 to 42 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; few fine tubular pores; 40 percent pebbles and 10 percent cobbles; slightly acid (pH 6.3); abrupt wavy boundary. (10 to 28 inches thick)

R—42 inches; hard, argillitic siltstone.

Type location: Elko County, Nevada; about 17 miles southwest of North Fork, about 1,200 feet south and 1,700 feet east of the northwest corner of sec. 14, T. 39 N., R. 53 E.; north latitude of 41 degrees, 16 minutes, 27 seconds; west longitude of 115 degrees, 58 minutes, 40 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July to early October, moist in winter and spring

Mean annual soil temperature: 38 to 47 degrees F

Mean summer soil temperature: 55 to 59 degrees F

Thickness of the mollic epipedon: 16 to 60 inches

Depth to bedrock: 40 to at least 80 inches

Reaction: Slightly acid or neutral

Control section: Texture (of the fraction less than 2 millimeters in size)—mainly loam, sandy loam, or fine sandy loam; clay content—18 to 27 percent; content of rock fragments—35 to 50 percent, dominantly pebbles

A horizon:
- Value—2 to 5 dry, 2 or 3 moist
- Chroma—1 to 3 in most pedons; chroma of 1 is common only in the A1 horizon, and chroma of 3 is common only in the A3 horizon or below it
- Structure—platy, subangular blocky, granular, or massive
- Base saturation—50 to 75 percent in the upper part
- Other features—crude stratification ranging from very gravelly sandy loam to very gravelly clay loam below the A1 horizon

C horizon:
- Hue—10YR or 7.5YR
- Value—4 to 7 dry, 3 to 5 moist
- Chroma—2 to 6
- Texture—very cobbly loam or very gravelly sandy loam
- Other features—no C horizon in some pedons where the mollic epipedon rests on bedrock at a depth of less than 48 inches

Hart Camp Series

The Hart Camp series consists of shallow, well drained soils that formed in residuum weathered from tuff. These soils are on hills and rock pediment remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy, mixed, frigid, shallow Aridic Argixerolls

Typical pedon: Hart Camp gravelly loam, 4 to 15 percent slopes, in an area of the Eboda-Hart Camp-Cotant association:

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; slightly hard, very friable, nonsticky and nonplastic; many

very fine and few fine roots; 15 percent pebbles; slightly acid (pH 6.5); clear smooth boundary. (1 to 4 inches thick)

A2—3 to 7 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; many very fine and few fine roots; many very fine and few fine discontinuous random tubular pores; 15 percent pebbles; neutral (pH 6.8); clear smooth boundary. (0 to 6 inches thick)

Bt—7 to 11 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; hard, friable, sticky and slightly plastic; common very fine and few fine roots; common very fine and few fine discontinuous random tubular pores; common thin clay films on faces of peds and bridging mineral grains; 15 percent pebbles; neutral (pH 6.8); abrupt wavy boundary. (3 to 10 inches thick)

Cr—11 to 24 inches; white (10YR 8/1), weathered tuff.

Type location: Elko County, Nevada; about 9 miles northwest of Elko, about 1,825 feet south and 610 feet east of the northwest corner of sec. 10, T. 35 N., R. 54 E.; north latitude of 40 degrees, 56 minutes, 17 seconds; west longitude of 115 degrees, 52 minutes, 50 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 15 inches, including part or all of argillic horizon

Depth to paralithic contact: 10 to 20 inches

Reaction: Slightly acid or neutral

Control section: Clay content—averages 15 to 35 percent; content of rock fragments—averages 15 to 35 percent

A horizon:
- Value—4 to 6 dry, 2 or 3 moist; where the upper 7 inches is mixed, value of less than 5.5
- Chroma—2 or 3
- Structure—weak fine or medium granular or subangular blocky, thin to thick platy, or massive
- Consistence—soft or slightly hard dry

Bt horizon:
- Hue—10YR or 7.5YR
- Value—4 to 6 dry, 2 to 4 moist
- Chroma—2 to 4
- Texture—mainly gravelly sandy clay loam, gravelly clay loam, or gravelly loam; a subhorizon of clay in some pedons
- Clay content—20 to 35 percent
- Content of rock fragments—averages 15 to 35 percent
- Structure—weak to strong fine to coarse subangular or angular blocky; moderate or strong fine or medium prismatic in some pedons

Cr horizon:
- Weathering—weathered in at least the upper 2 inches of the bedrock and in as much as the upper 20 inches

Haybourne Series

The Haybourne series consists of very deep, well drained soils that formed in alluvium derived mainly from mixed rock sources. These soils are on fan piedmont remnants. Slopes are 0 to 15 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 50 degrees F.

Taxonomic class: Coarse-loamy, mixed, mesic Xerollic Camborthids

Typical pedon: Haybourne sandy loam, 15 to 30 percent slopes, in an area of the Orovada-Bioya-Haybourne association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.3); clear smooth boundary. (1 to 4 inches thick)

A2—3 to 6 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; 5 percent pebbles; neutral (pH 7.3); clear wavy boundary. (0 to 6 inches thick)

A3—6 to 12 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common fine and few very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.5); gradual wavy boundary. (6 to 10 inches thick)

Bw—12 to 21 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, friable, nonsticky

and nonplastic; few very fine and fine roots; common very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.7); clear wavy boundary. (9 to 12 inches thick)

C1—21 to 35 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (9 to 14 inches thick)

C2—35 to 60 inches; very pale brown (10YR 7/4) loamy sand, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine interstitial pores; 5 percent pebbles; mildly alkaline (pH 7.7).

Type location: Elko County, Nevada; about 19 miles south of Elko, about 1,500 feet north and 60 feet west of the southeast corner of sec. 28, T. 31 N., R. 56 E.; north latitude of 40 degrees, 32 minutes, 18 seconds; west longitude of 115 degrees, 39 minutes, 45 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 53 degrees F

Combined thickness of the A and Bw horizons: 18 to 32 inches

Control section: Clay content—averages 10 to 18 percent; content of rock fragments—0 to 20 percent, mainly fine pebbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—granular, subangular blocky, platy, or massive
- Reaction—neutral or mildly alkaline

Bw horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 to 4
- Texture—coarse sandy loam, sandy loam, or fine sandy loam
- Clay content—8 to 18 percent
- Content of rock fragments—0 to 20 percent
- Structure—subangular blocky or massive
- Reaction—neutral to moderately alkaline

C horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 to 4
- Texture—stratified gravelly coarse sand to fine sandy loam
- Clay content—5 to 12 percent
- Content of rock fragments—0 to 15 percent, mainly fine pebbles
- Structure—massive or single grain
- Reaction—neutral to moderately alkaline
- Effervescence—in some pedons influenced by calcareous material, slightly effervescent or moderately effervescent at a depth of more than 30 inches
- Other features—stratified very gravelly fine sand and cobbly sand at a depth of more than 40 inches in some pedons

Heechee Series

The Heechee series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources. These soils are on fan piedmont remnants and the summits of plateaus. Slopes are 2 to 30 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical pedon: Heechee cobbly loam, 4 to 15 percent slopes, in an area of the Betra-McIvey-Heechee association:

A1—0 to 4 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine and common fine continuous tubular pores; 10 percent pebbles, 5 percent cobbles, and 3 percent stones; neutral (pH 7.2); clear smooth boundary. (2 to 5 inches thick)

A2—4 to 11 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; many very fine and common fine continuous tubular pores; 10 percent pebbles, 10 percent cobbles, and 2 percent stones; neutral (pH 7.2); clear smooth boundary. (5 to 10 inches thick)

Bt1—11 to 18 inches; dark grayish brown (10YR 4/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium angular blocky structure; hard, firm, sticky and plastic; common very fine and few fine and medium

roots; many very fine and few fine discontinuous tubular pores; common thin clay films on faces of peds and lining pores; 35 percent pebbles, 15 percent cobbles, and 2 percent stones; neutral (pH 7.2); abrupt wavy boundary. (5 to 12 inches thick)

Bt2—18 to 33 inches; brown (7.5YR 5/4) very gravelly sandy clay loam, dark brown (7.5YR 4/4) moist; moderate medium angular blocky structure; hard, friable, sticky and plastic; few very fine to medium roots; many very fine and few fine discontinuous tubular pores; many thin clay films on faces of peds and lining pores; 40 percent pebbles, 15 percent cobbles, and 2 percent stones; neutral (pH 7.2); clear wavy boundary. (10 to 18 inches thick)

2C—33 to 63 inches; strong brown (7.5YR 5/6) extremely cobbly sandy loam, strong brown (7.5YR 4/6) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine to coarse roots; many very fine and few fine interstitial pores; 45 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral (pH 7.2).

Type location: Elko County, Nevada; about 18.5 miles southeast of Elko Nevada, about 1,585 feet south and 1,585 feet east of the northwest corner of sec. 33, T. 32 N., R. 57 E.; north latitude of 40 degrees, 36 minutes, 58 seconds; west longitude of 115 degrees, 33 minutes, 38 seconds

Range in Characteristics

Soil moisture: Usually moist, especially in winter and spring; dry in places from mid-July to early October

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 12 to 20 inches, including the upper part of the argillic horizon

Depth to the base of the argillic horizon: 27 to 40 inches

Control section: Clay content—25 to 35 percent; content of rock fragments—35 to 60 percent overall (20 to 45 percent pebbles, 15 to 25 percent cobbles, and 0 to 10 percent stones)

Other features: In some small areas on plateaus, paralithic contact is at a depth of 50 to 60 inches.

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 to 5 moist
Chroma—2 to 4
Texture—very cobbly clay loam, very gravelly sandy clay loam, or very cobbly loam

2C horizon:
Hue—7.5YR or 10YR
Value—5 to 6 dry
Chroma—4 to 6
Texture—mainly extremely cobbly sandy loam; extremely cobbly coarse sandy loam or coarser textures at a depth of more than 40 inches in some pedons
Content of rock fragments—60 to 80 percent, mainly cobbles and stones

Hopeka Series

The Hopeka series consists of very shallow, well drained soils that formed in residuum and colluvium derived from limestone and dolostone. These soils are on mountain side slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents

Typical pedon: Hopeka very gravelly loam, 15 to 50 percent slopes, in an area of the Hopeka-Cavehill association:

A—0 to 1 inch; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine and common medium and fine vesicular pores; 50 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (1 to 4 inches thick)

C1—1 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate very fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine interstitial pores; 35 percent pebbles; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (0 to 2 inches thick)

C2—3 to 8 inches; light brownish gray (10YR 6/2) very gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium and few very fine roots; common very fine interstitial pores; 55 percent pebbles; thick lime pendants on the underside of pebbles; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (3 to 6 inches thick)

R—8 inches; hard dolostone.

Type location: Elko County, Nevada; about 28 miles south of Carlin, about 1,400 feet west and 2,000 feet south of the northeast corner of sec. 19, T. 28 N., R. 53 E.; north latitude of 40 degrees, 17

minutes, 46 seconds; west longitude of 116 degrees, 01 minute, 57 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through mid-October, moist in places in winter and spring

Soil temperature: 43 to 47 degrees F

Depth to bedrock: 4 to 10 inches

Reaction: Moderately alkaline or strongly alkaline

Control section: Clay content—18 to 27 percent; content of rock fragments—35 to 60 percent limestone or dolostone pebbles, cobbles, or stones; calcium carbonate equivalent (in the fraction less than 20 millimeters in size)—40 to 85 percent by weight

A horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Effervescence—strongly effervescent or violently effervescent

C horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4
Structure—weak or moderate subangular blocky or massive

Humdun Series

The Humdun series consists of very deep, well drained soils that formed in loess and a moderate amount of volcanic ash over alluvium and residuum derived from andesite or tuff or in alluvium derived from mixed rock sources. These soils are on fan piedmont remnants and the side slopes of hills. Slopes are 15 to 30 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Coarse-loamy, mixed, frigid Durixerollic Camborthids

Typical pedon: Humdun loam, 15 to 30 percent slopes, in an area of the Zevadez-Humdun-Vanwyper association:

A1—0 to 2 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine vesicular and common fine tubular pores; mildly alkaline (pH 7.4); abrupt smooth boundary. (1 to 2 inches thick)

A2—2 to 7 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; mildly alkaline (pH 7.4); clear smooth boundary. (1 to 6 inches thick)

Bw1—7 to 18 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; mildly alkaline (pH 7.4); clear smooth boundary. (6 to 13 inches thick)

Bw2—18 to 29 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; few very fine tubular pores; mildly alkaline (pH 7.8); clear wavy boundary. (5 to 13 inches thick)

Bqk1—29 to 35 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; common very fine roots; few very fine tubular pores; 30 percent hard, firm durinodes ½ inch to 1½ inches in diameter; common medium irregularly shaped soft lime masses; strongly alkaline (pH 8.7); clear wavy boundary. (6 to 15 inches thick)

Bqk2—35 to 63 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; 20 percent slightly hard and friable durinodes ½ to 1 inch in diameter; violently effervescent; strongly alkaline (pH 8.8)

Type location: Elko County, Nevada; about 10 miles northeast of Elko, about 400 feet west and 1,000 feet north of the southeast corner of sec. 10, T. 35 N., R. 56 E.; north latitude of 40 degrees, 55 minutes, 49 seconds; west longitude of 115 degrees, 38 minutes, 07 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; moist in places from late October to early June

Soil temperature: 45 to 47 degrees F

Combined thickness of the A and Bw horizons and depth to the Bqk horizon: 24 to 33 inches

Control section: Clay content—10 to 15 percent; content of rock fragments—less than 5 percent where mixed

Other features: Most pedons have white lime segregations; some pedons have a 2Bqk horizon of very gravelly loam between depths of 40 and 60 inches; pedons with a dark colored A horizon do not

meet the thickness requirement for a mollic epipedon.

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate fine or medium granular or subangular blocky or thin or medium platy
Consistence—soft or slightly hard when dry
Reaction—neutral or mildly alkaline

Bw horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—loam, very fine sandy loam, or silt loam
Structure—fine to coarse subangular blocky or prismatic or massive
Reaction—neutral to moderately alkaline
Other features—in some pedons durinodes making up as much as 20 percent of the lower part

Bqk horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—loam, very fine sandy loam, or silt loam
Consistence—soft, slightly hard, or hard when dry
Reaction—moderately alkaline or strongly alkaline
Cementation—20 to 80 percent durinodes that when dry are hard to extremely hard and when moist are firm or very firm

Hunewill Series

The Hunewill series consists of very deep, well drained, soils that formed in alluvium derived from mixed rock sources. These soils are on partial ballenas, alluvial fans, and fan piedmont remnants. Slopes are 0 to 30 percent. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 49 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Xerollic Haplargids

Typical pedon: Hunewill gravelly coarse sandy loam, 15 to 30 percent slopes, in an area of the Vanwyper-Connel-Hunewill association:

A1—0 to 4 inches; light brownish gray (10YR 6/2) gravelly coarse sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; common interstitial pores; 30 percent pebbles; neutral (pH 7.2); clear wavy boundary. (1 to 4 inches thick)

A2—4 to 7 inches; brown (10YR 5/3) gravelly silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine interstitial pores; 30 percent pebbles; neutral (pH 7.2); clear wavy boundary. (1 to 4 inches thick)

Bt1—7 to 14 inches; brown (10YR 5/3) very gravelly sandy clay loam, dark brown (10YR 4/3) moist; weak fine angular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and few fine roots; many very fine interstitial pores; common thin clay films bridging mineral grains; 35 percent pebbles; neutral (pH 7.2); clear wavy boundary. (5 to 12 inches thick)

Bt2—14 to 19 inches; brown (10YR 5/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine and very fine roots; many very fine interstitial pores; few thin clay films bridging mineral grains; 40 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (3 to 8 inches thick)

2C—19 to 62 inches; light yellowish brown (10YR 6/4) extremely gravelly sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; few fine and very fine roots; 65 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.5).

Type location: Elko County, Nevada; about 22 miles northeast of Elko, about 900 feet east and 2,200 feet south of the approximate northwest corner of sec. 15, T. 37 N., R. 57 E.; north latitude of 40 degrees, 05 minutes, 44 seconds; west longitude of 115 degrees, 31 minutes, 26 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in winter and spring

Soil temperature: 47 to 53 degrees F

Combined thickness of the A and Bt horizons: 10 to 20 inches

Control section: Clay content—18 to 27 percent; content of rock fragments—35 to 50 percent, mainly pebbles

Other features: A darker value when the soils are dry reflects primarily lithochromic colors.

A horizon:
Value—5 or 6 dry, 3 or 4 moist; dry value of more than 5.5 where the uppermost 7 inches is mixed
Chroma—2 or 3
Structure—platy, subangular blocky, or massive

Bt horizon:
Hue—10YR or 7.5YR

Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—very gravelly loam, very gravely sandy clay loam, or very gravelly clay loam
Clay content—25 to 35 percent; content of rock fragments—35 to 50 percent, mainly pebbles
Reaction—neutral or mildly alkaline

2Bt2 horizon:
Texture—very gravelly loam or very gravelly sandy loam
Clay content—5 to 15 percent
Content of rock fragments—35 to 50 percent, mainly pebbles
Reaction—neutral or mildly alkaline

2C horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4
Texture—extremely gravelly or cobbly sand or loamy sand
Clay content—0 to 2 percent
Content of rock fragments—60 to 70 percent rounded pebbles and cobbles
Reaction—neutral or mildly alkaline
Other features—few very thin lime coatings at the bottom of the larger cobbles in some pedons

Hunnton Series

The Hunnton series consists of well drained soils that are moderately deep over an indurated duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Durargids

Typical pedon: Hunnton loam, 4 to 15 percent slopes, in an area of the Hunnton-Wieland-Hunnton, gravelly association:

A1—0 to 6 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; soft, very friable, sticky and plastic; many very fine and fine and few medium roots; many very fine tubular and few very fine vesicular pores; moderately alkaline (pH 8.0); clear wavy boundary. (2 to 6 inches thick)

A2—6 to 14 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine and fine and few medium roots; many very fine and few fine tubular pores; moderately alkaline (pH 8.0); clear irregular boundary. (0 to 8 inches thick)

Bt1—14 to 19 inches; pale brown (10YR 6/3) clay, dark brown (10YR 3/3) moist; dark brown (10YR 3/3 moist) coatings on peds; few fine distinct dark brown (7.5YR 3/2 moist) mottles; weak fine and medium angular blocky structure; very hard, firm, very sticky and very plastic; few very fine, fine, and coarse roots; common very fine tubular pores; many stress surfaces and many moderately thick clay films lining pores; moderately alkaline (pH 8.2); clear irregular boundary. (3 to 7 inches thick)

Bt2—19 to 28 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to weak fine and medium angular blocky; very hard, friable, very sticky and very plastic; few very fine, fine, and coarse roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (5 to 10 inches thick)

Bqkm—28 to 42 inches; very pale brown (10YR 8/3), indurated duripan, pale brown (10YR 6/3) moist; massive; very hard, very firm and extremely firm, brittle; few very fine roots along some fractures; common very fine tubular pores; continuous horizontal silica laminae 1 to 2 millimeters thick in the upper part and in horizontal bands throughout; weathered to weak silica cementation ½ to 1 inch thick directly above the indurated duripan; violently effervescent; moderately alkaline (pH 8.6); gradual wavy boundary. (14 to 23 inches thick)

2Cqk—42 to 60 inches; white (10YR 8/2) extremely gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, very friable, nonsticky and nonplastic; 30 percent weak discontinuous silica cementation; 70 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 15 miles southeast of Elko, about 1,300 feet west and 75 feet south of the approximate northeast corner of sec. 27, T. 33 N., R. 57 E.; north latitude of 40 degrees, 43 minutes, 17 seconds; west longitude of 115 degrees, 31 minutes, 54 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring
Soil temperature: 50 to 52 degrees F
Depth to a duripan: 20 to 40 inches
Depth to lime: 15 to 32 inches
Other features: Some pedons have a Bqk horizon with

weak continuous silica cementation above the duripan. This horizon is 4 to 8 inches thick. In some pedons a horizon that has strong silica cementation and is 40 to 60 percent pebbles is below the indurated duripan.

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak or moderate very thin to very thick platy or subangular blocky or massive
Reaction—neutral to moderately alkaline

Bt horizon:
Hue—10YR or 7.5YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—3 or 4
Texture—clay or gravelly clay
Clay content—averages 45 to 55 percent
Content of rock fragments—0 to 25 percent
Structure—weak or moderate very fine to medium subangular or angular blocky or prismatic
Reaction—mildly alkaline or moderately alkaline
Effervescence—noneffervescent in the upper part; slight or strong in the lower part
Other features—a Bt1 horizon of loam or clay loam and thin clay films in some pedons

Bqkm horizon:
Value—7 or 8 dry, 4 to 7 moist
Chroma—2 or 3 dry, 3 or 4 moist
Structure—massive or weak medium to very thick platy

2Cqk horizon:
Value—6 to 8 dry, 4 to 6 moist
Chroma—2 to 4 dry, 3 or 4 moist
Texture—very gravelly sandy loam, very gravelly loamy sand, or extremely gravelly loamy sand
Clay content—2 to 10 percent
Content of rock fragments—40 to 70 percent, mainly pebbles
Reaction—moderately alkaline or strongly alkaline
Other features—common silica laminae that have weak discontinuous or continuous silica cementation and are ½ to 1 millimeter thick; in some pedons as much as 40 percent strong discontinuous silica cementation

Hussa Series

The Hussa series consists of very deep, poorly drained soils that formed in loamy alluvium derived from mixed rock sources and a component of vitric pyroclastic material. These soils are on axial stream flood plains and inset fans. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy, mixed (calcareous), frigid Fluvaquentic Haplaquolls

Typical pedon: Hussa silt loam, 0 to 2 percent slopes, in an area of the Hussa-Halleck-Welsum association:

A1—0 to 4 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; moderate fine granular structure; slightly hard, very friable, sticky and plastic; many very fine and few fine roots; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary. (2 to 6 inches thick)

A2—4 to 16 inches; gray (10YR 5/1) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, firm, very sticky and very plastic; common fine and few very fine roots; common fine tubular and common very fine interstitial pores; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary. (0 to 18 inches thick)

C1—16 to 21 inches; gray (10YR 6/1) clay loam, dark grayish brown (10YR 4/2) moist; few fine faint brown (10YR 4/3) mottles; massive; hard, firm, sticky and plastic; few very fine roots; common very fine and few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (2 to 5 inches thick)

C2—21 to 36 inches; light gray (10YR 7/1) clay loam, grayish brown (10YR 5/2) moist; massive; hard, firm, sticky and plastic; few very fine roots; many very fine interstitial and few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (3 to 15 inches thick)

Ab—36 to 50 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; massive; hard, firm, sticky and plastic; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (0 to 14 inches thick)

Cg—50 to 60 inches; grayish brown (2.5Y 5/2) clay loam, very dark grayish brown (2.5Y 3/2) moist; many medium prominent brown (10YR 4/3 moist) and common medium prominent dark greenish gray (5GY 4/1 moist) mottles; massive; very hard, firm, very sticky and very plastic; violently effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 2 miles north of Lamoille, about 900 feet west and 2,600 feet north of the southeast corner of sec. 8, T. 33 N., R. 58 E.; north latitude of 40 degrees, 45

minutes, 30 seconds; west longitude of 115 degrees, 27 minutes, 13 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years; drained phases in some areas
Soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 12 to 24 inches
Reaction: Moderately alkaline or strongly alkaline
Carbonates: Few or common fine or medium white lime segregations throughout, but more common in horizons above the water table
Control section: Clay content—25 to 35 percent; sand fraction—more than 15 percent fine sand or coarser sand; content of rock fragments—mainly 0 to 15 percent, but as much as 35 percent pebbles in thin horizons in some pedons
Other features: A root mat (0i horizon) as much as 4 inches thick in some areas that have not been cultivated

A horizon:
Hue—10YR or 2.5Y
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 or 2
Texture (lower part)—clay loam or loam
Structure—weak to strong fine to coarse platy, subangular blocky, or granular or massive
Consistence—slightly hard to very hard, but not both massive and hard when dry
Other features—one to several buried A horizons throughout the profile

C horizon:
Hue—10YR to 5Y
Value—5.5 to 7 dry, 3 to 5 moist
Chroma—1 to 3
Structure—subangular blocky or massive
Texture—mainly stratified loam to silty clay loam; thin strata of fine sandy loam or sandy loam in some pedons and silty clay or clay at a depth of more than 40 inches in others
Clay content—averages 25 to 35 percent
Content of rock fragments—averages 0 to 15 percent
Other features—faint to prominent iron, manganese, or organic mottles

Ichbod Series

The Ichbod series consists of shallow, well drained soils that formed in residuum derived from andesite and rhyolite. These soils are on hills. Slopes are 2 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls

Typical pedon: Ichbod gravelly sandy loam, 2 to 15 percent slopes, in an area of the Ichbod-Akler association:

A—0 to 3 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; 15 percent pebbles; mildly alkaline (pH 7.6); abrupt smooth boundary. (3 to 6 inches thick)
Bt1—3 to 7 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine and fine roots; common very fine and fine interstitial pores; common thin clay films lining pores and bridging sand grains; 10 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 5 inches thick)
Bt2—7 to 12 inches; brown (10YR 5/3) ped surfaces of gravelly sandy clay, dark brown (10YR 3/3) moist; very pale brown (10YR 8/4) ped interiors, very pale brown (10YR 7/4) moist; moderate fine angular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; common very fine and fine interstitial and tubular pores; many moderately thick and thick clay films on faces of peds; 20 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 6 inches thick)
Bt3—12 to 19 inches; ped surfaces of brown (10YR 5/3) gravelly sandy clay, dark brown (10YR 3/3) moist; very pale brown (10YR 8/4) ped interiors, very pale brown (10YR 7/4) moist; moderate coarse prismatic structure; hard, very firm, sticky and plastic; few very fine roots; few very fine and fine interstitial and tubular pores; continuous thick clay films on faces of peds; 20 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 10 inches thick)
Cr—19 to 35 inches; decomposed andesite; few thin and moderately thick clay films along weak fracture planes; clear wavy boundary. (10 to 26 inches thick)
R—35 inches; hard andesite.

Type location: Elko County, Nevada; about 40 miles south of Elko, about 53 feet north and 53 feet east of the southwest corner of sec. 4, T. 27 N., R. 54 E.; north latitude of 40 degrees, 14 minutes, 40

seconds; west longitude of 115 degrees, 54 minutes, 21 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring
Soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 7 to 12 inches, including the upper part of the argillic horizon
Depth to paralithic contact: 14 to 20 inches
Depth to hard bedrock: 30 to 40 inches
Control section: Clay content—35 to 50 percent; content of rock fragments—15 to 35 percent pebbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3

Bt1 horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Clay content—25 to 35 percent
Content of rock fragments—0 to 10 percent

Bt2 and Bt3 horizons:
Hue—2.5Y or 10YR
Value—5 to 8 dry, 3 to 7 moist
Chroma—2 to 4
Texture—gravelly sandy clay or gravelly clay
Clay content—35 to 50 percent
Clay films—common or many, moderately thick or thick
Content of rock fragments—15 to 35 percent
Other features—dark colors commonly on ped surfaces are organic stains; light colors commonly on ped interiors

Cr horizon:
Color—reflects primary rock minerals
Clay films—common along weak fracture planes

Igdell Series

The Igdell series consists of well drained soils that are moderately deep to an indurated duripan. These soils formed in a thin loess cap over alluvium derived mainly from mixed rock sources. The soils are on fan piedmont remnants and the summits of plateaus. Slopes are 2 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Abruptic Aridic Durixerolls

Typical pedon: Igdell gravelly silt loam, 2 to 15 percent slopes, in an area of the Igdell-Gance-Eboda association:

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate very thin platy structure; soft, very friable, sticky and plastic; common very fine roots; common very fine vesicular and interstitial pores; 15 percent pebbles; neutral (pH 7.0); abrupt smooth boundary. (2 to 9 inches thick)

A2—2 to 5 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; common very fine interstitial and tubular pores; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary. (0 to 6 inches thick)

2AB—5 to 8 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; hard, very friable, sticky and very plastic; many very fine and fine and few medium roots; common very fine tubular pores; few faint clay films on faces of peds and lining pores; 20 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (0 to 4 inches thick)

2Bt1—8 to 11 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 3/3) moist; moderate fine and medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; many stress surfaces and many moderately thick clay films on faces of peds and lining pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (2 to 5 inches thick)

2Bt2—11 to 23 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure; very hard, firm, very sticky and very plastic; few very fine and fine exped roots; few very fine tubular pores; many stress surfaces on faces of peds; 10 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary. (10 to 14 inches thick)

2Bt3—23 to 27 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; hard, very friable, sticky and plastic; few very fine roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary. (3 to 6 inches thick)

2Bqkm—27 to 40 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/3) moist; massive; extremely hard, extremely firm; continuous alternating bands of silica laminae ½ millimeter to 2 millimeters thick; violently effervescent; moderately alkaline (pH 8.2)

Type location: Elko County, Nevada; about 10 miles northwest of Elko, about 700 feet east and 1,200 feet south of the northwest corner of sec. 36, T. 36 N., R. 54 E.; north latitude of 40 degrees, 58 minutes, 08 seconds; west longitude of 115 degrees, 51 minutes, 31 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches, including the upper part of the argillic horizon

Depth to lime: 20 to 33 inches

Depth to a duripan: 20 to 40 inches

Control section: Clay content—averages 45 to 60 percent; content of rock fragments—10 to 35 percent, mainly pebbles

A and AB horizons:
- Chroma—2 or 3
- Reaction—neutral or mildly alkaline

2Bt horizon:
- Hue—10YR or 7.5YR
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—clay, gravelly clay, or silty clay in the upper part and gravelly loam, gravelly clay loam, or very gravelly sandy clay loam in the lower part, directly above the duripan
- Content of rock fragments—10 to 40 percent in any part of the horizon, but averages less than 35 percent
- Reaction—neutral to moderately alkaline; alkalinity increasing with increasing depth
- Other features—60 to 70 percent clay in the upper part of the horizon

2Bqkm horizon:
- Value—7 or 8 dry
- Structure—thick platy or massive
- Thickness—10 to at least 30 inches thick; the base extending to a depth of more than 40 inches

Inpendence Series

The Inpendence series consists of very deep, moderately well drained soils that formed in colluvium derived from welded tuff, chert, shale, and quartzite. These soils are on the concave side slopes of mountains and plateaus. Slopes are 15 to 50 percent. The mean annual precipitation is about 16 inches, and the mean annual temperature is about 40 degrees F.

Taxonomic class: Loamy-skeletal, mixed Entic Cryumbrepts

Typical pedon: Inpendence gravelly loam, 30 to 50 percent slopes, in an area of the Gando-Inpendence-Bullump association:

0i—4 to 2 inches; aspen leaves and twigs.

0e—2 inches to 0; decomposed organic litter.

A1—0 to 9 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine to coarse roots; few very fine tubular pores; 30 percent pebbles; strongly acid (pH 5.2); clear wavy boundary. (5 to 10 inches thick)

A2—9 to 24 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many medium and coarse and common very fine and fine roots; few very fine and fine tubular pores; 40 percent pebbles; strongly acid (pH 5.1); clear wavy boundary. (10 to 25 inches thick)

C1—24 to 40 inches; pale brown (10YR 6/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; common very fine and fine tubular pores; 40 percent pebbles, 15 percent cobbles, and 5 percent stones; strongly acid (pH 5.1); clear wavy boundary. (14 to 20 inches thick)

C2—40 to 60 inches; pale brown (10YR 6/3) extremely gravelly sandy loam, dark brown (10YR 4/3) moist; massive; hard, firm, sticky and slightly plastic; few medium and coarse roots; common very fine and fine tubular pores; few very thin silt films lining pores; 60 percent pebbles; very strongly acid (pH 5.0).

Type location: Elko County, Nevada; about 36 miles north of Elko, about 2,100 feet north and 700 feet east of the southwest corner of sec. 25, T. 40 N., R. 53 E.; north latitude of 41 degrees, 19 minutes, 37 seconds; west longitude of 115 degrees, 57 minutes, 44 seconds

Range in Characteristics

Soil moisture: Usually moist; dry in September and October; additional moisture sometimes resulting

from lateral water movement in the lower part of the control section or in the substratum
Average summer soil temperature: 43 to 47 degrees F
Base saturation: 10 to 30 percent; highest in the surface layer and decreasing with increasing depth
Thickness of the umbric epipedon: 17 to 35 inches
Reaction: Very strongly acid to slightly acid, generally throughout the profile
Organic matter content: 4 to 7 percent in the surface layer, decreasing with increasing depth
Control section: Texture—very gravelly or extremely gravelly loam or sandy loam; clay content—10 to 18 percent; content of rock fragments—averages 40 to 60 percent, mainly pebbles but 0 to 15 percent cobbles or stones, mainly at a depth of more than 20 inches
Other features: An AC horizon in some pedons

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—mainly weak subangular blocky but granular in the upper part in some pedons

C horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—3 or 4
Other features—in the lower part in most pedons, pores lined with very thin silt coatings or uncoated sand grains

Izod Series

The Izod series consists of shallow, somewhat excessively drained soils that formed in residuum and colluvium derived from limestone. These soils are on the crests and side slopes of hills and mountains and in rock-core areas of the side slopes on fan piedmont remnants. Slopes are 4 to 75 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

Typical pedon: Izod very gravelly loam, 4 to 15 percent slopes, in an area of the Izod-Porrone-Chiara association:

A—0 to 3 inches; light gray (10YR 7/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, very friable, sticky and plastic; common very fine and few fine roots; many very fine and fine vesicular pores; 40 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (1 to 4 inches thick)

C1—3 to 7 inches; light gray (10YR 7/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and few fine and coarse roots; common very fine interstitial and tubular pores; 35 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (3 to 8 inches thick)

C2—7 to 13 inches; light gray (10YR 7/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, slightly sticky and plastic; many very fine and few fine and medium roots; common very fine interstitial pores; 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary. (0 to 8 inches thick)

R—13 inches; fractured limestone; about 50 percent covered with lime and silica laminae ⅛ to 1 inch thick.

Type location: Elko County, Nevada; about 8 miles southwest of Elko, about 2,000 feet north and 2,600 feet east of the southwest corner of sec. 19, T. 33 N., R. 55 E.; north latitude of 40 degrees, 43 minutes, 48 seconds; west longitude of 115 degrees, 49 minutes, 25 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places from late fall to early spring
Soil temperature: 47 to 50 degrees F
Depth to bedrock: 7 to 14 inches
Reaction: Mildly alkaline or moderately alkaline
Control section: Clay content—18 to 25 percent; content of rock fragments—40 to 75 percent, mainly pebbles; calcium carbonate equivalent—50 to 60 percent by weight in the fraction less than 20 millimeters in size
Other features: Common silica and lime laminae covering as much as 75 percent of the bedrock surface

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—weak or moderate very thin or thin platy
Effervescence—strongly effervescent or violently effervescent

C horizon:
Value—6 to 8 dry, 4 or 5 moist
Chroma—2 or 3

Structure—weak or moderate subangular blocky or massive

Karpp Series

The Karpp series consists of well drained soils that are shallow to an indurated duripan. These soils formed in loess and a component of volcanic ash over alluvium derived mainly from limestone. They are on fan piedmont remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Xerollic Durorthids

Typical pedon: Karpp silt loam, 4 to 15 percent slopes, in an area of the Karpp-Chiara-Rad association:

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure parting to moderate very fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 7.9); clear smooth boundary. (2 to 4 inches thick)

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, very dark grayish brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine to medium roots; many very fine interstitial pores; 8 percent calcium carbonate equivalent; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 6 inches thick)

2Bk1—7 to 12 inches; very pale brown (10YR 7/3) very gravelly silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common very fine interstitial pores; 15 percent calcium carbonate equivalent; 55 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (4 to 9 inches thick)

2Bk2—12 to 15 inches; very pale brown (10YR 8/3) very gravelly silt loam, very pale brown (10YR 7/3) moist; massive; hard, friable, nonsticky and nonplastic; few medium roots; common very fine interstitial pores; 20 percent calcium carbonate equivalent; 20 percent weak durinodes; 50 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (2 to 9 inches thick)

2Bqkm—15 to 41 inches; white (10YR 8/2), indurated duripan that has a thin continuous laminae cap; light gray (10YR 7/2) moist; massive; extremely hard, extremely firm; strongly effervescent.

Type location: Elko County, Nevada; 30 feet north of Cedar Ridge Road, SE¼NE¼NE¼ sec. 6, T. 29 N., R. 55 E.; north latitude of 40 degrees, 25 minutes, 45 seconds; west longitude of 115 degrees, 49 minutes, 00 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 51 degrees F

Effervescence: Mainly slightly effervescent to violently effervescent, but noneffervescent in the upper 1 to 3 inches of some pedons

Depth to an indurated duripan: 14 to 20 inches

Control section: Clay content—18 to 25 percent; content of rock fragments—35 to 55 percent, mainly pebble-size duripan fragments

A horizon:
- Value—5 or 6 dry, 3 or 4 moist; where the uppermost 7 inches is mixed, value of more than 5.5 dry
- Chroma—2 or 3
- Reaction—mildly alkaline or moderately alkaline

2Bk horizon:
- Value—6 to 8 dry, 4 or 5 moist
- Chroma—2 or 3
- Reaction—moderately alkaline or strongly alkaline, becoming more alkaline with increasing depth
- Content of weak durinodes—0 to 20 percent
- Calcium carbonate equivalent—10 to 20 percent in the fraction less than 20 millimeters in size

2Bqkm horizon:
- Value—7 or 8 dry, 5 to 7 moist
- Chroma—2 or 3

Kelk Series

The Kelk series consists of very deep, well drained soils that formed in loess and some volcanic ash over mixed alluvium. These soils are on inset fans, fan piedmont remnants, partial ballenas, fan skirts, stream terraces, and alluvial plains. Slopes are 0 to 15 percent. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine-silty, mixed, mesic Durixerollic Camborthids

Typical pedon: Kelk silt loam, 0 to 2 percent slopes, in an area of the Enko-Kelk association:

A1—0 to 4 inches; light brownish gray (10YR 6/2) silt

loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic and weak very thin platy structure in place; soft, very friable, sticky and plastic; many very fine and fine roots; many very fine vesicular pores; neutral (pH 7.0); abrupt wavy boundary. (2 to 4 inches thick)

A2—4 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak very thin platy structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine vesicular pores; neutral (pH 7.0); clear wavy boundary. (0 to 4 inches thick)

Bw—7 to 14 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine roots; many very fine and few fine tubular pores; neutral (pH 7.2); clear wavy boundary. (6 to 15 inches thick)

Bq1—14 to 17 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, sticky and plastic; many very fine and common fine roots; common very fine tubular pores; 50 percent weak durinodes 10 to 25 millimeters thick; mildly alkaline (pH 7.4); abrupt wavy boundary. (0 to 9 inches thick)

Bq2—17 to 31 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 5/3) moist; massive; hard, friable, sticky and plastic; few very fine roots; common very fine tubular pores; 90 percent weak durinodes 10 to 25 millimeters thick; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 15 inches thick)

Bqk1—31 to 51 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; few fine distinct brownish yellow (10YR 6/6 moist) and few fine faint brown (7.5YR 4/4 moist) relict mottles; massive; hard, firm, sticky and plastic; few very fine tubular pores; common fine secondary carbonates in filaments; strongly effervescent; weak continuous silica cementation; moderately alkaline (pH 8.0); clear wavy boundary. (13 to 34 inches thick)

Bqk2—51 to 60 inches; light gray (2.5Y 7/2) silt loam, yellowish brown (10YR 5/4) moist; few fine distinct relict mottles, light brown (7.5YR 6/4) dry and brown (7.5YR 4/4) moist; massive; slightly hard, friable, sticky and plastic; few very fine tubular pores; 40 percent weak discontinuous silica cementation; many fine secondary carbonates in filaments; strongly effervescent; strongly alkaline (pH 8.8).

Type location: Elko County, Nevada; about 7 miles southeast of Elko, about 1,700 feet east and 1,500 feet south of the approximate northwest corner of sec. 34, T. 34 N., R. 56 E.; north latitude of 40 degrees, 47 minutes, 31 seconds; west longitude of 115 degrees, 38 minutes, 47 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; moist in places from October to early May

Soil temperature: 47 to 52 degrees F

Depth to the base of the Bw horizon: 12 to 18 inches

Depth to weak continuous silica cementation: 18 to 35 inches

Depth to carbonates: 12 to 35 inches

Control section: Clay content—18 to 25 percent

Other features: Most areas are lightly or moderately salt-affected at a depth of 24 to 48 inches; some pedons have no relict mottles in the lower part of the Bqk horizon, have lenses with 5 to 15 percent pebbles in some part of the Bqk horizon or an extremely gravelly substratum at a depth of more than 42 inches, or have a 2Bk horizon of silty clay loam at a depth of more than 39 inches.

A horizon:

- Hue—10YR or 2.5Y
- Structure—very thin or thin platy or prismatic or massive
- Reaction—neutral to moderately alkaline
- Effervescence—noneffervescent or slightly effervescent

Bw horizon:

- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—blocky, prismatic, or massive
- Reaction—mainly neutral to moderately alkaline; strongly alkaline where affected by salt and sodium
- Effervescence—noneffervescent or slightly effervescent
- Other features—10 to 20 percent weak durinodes near the lower boundary in some pedons

Bq and Bqk horizons:

- Value—6 to 8 dry, 3 to 6 moist
- Chroma—2 to 4
- Reaction—mildly alkaline to strongly alkaline, becoming more alkaline with increasing depth
- Effervescence—slightly effervescent to violently effervescent in the Bqk horizon
- Cementation—30 to 95 percent durinodes in those parts of the Bq and Bqk horizons without continuous silica cementation; 20 to 50 percent weak discontinuous silica cementation in some parts of the horizons

Kleckner Series

The Kleckner series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and in some areas in colluvium derived from welded tuff or rhyolite. These soils are on fan piedmont remnants and hills. Slopes are 2 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Aridic Argixerolls

Typical pedon: Kleckner very cobbly loam, 15 to 30 percent slopes, in an area of the Donna-Gochea-Kleckner association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very cobbly loam, very dark brown (10YR 2/2) moist; moderate thin platy structure; soft, very friable, nonsticky and nonplastic; many fine roots; many very fine and fine interstitial pores; 25 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt smooth boundary. (2 to 4 inches thick)

A2—3 to 9 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate very fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many fine and very fine interstitial pores; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (4 to 8 inches thick)

Bt1—9 to 12 inches; brown (10YR 5/3) very cobbly clay, dark brown (10YR 3/3) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; common fine and medium roots; common fine and very fine interstitial and tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 4 inches thick)

Bt2—12 to 25 inches; light brown (7.5YR 6/4) very cobbly clay, brown (7.5YR 4/4) moist; strong medium angular blocky structure; hard, firm, very sticky and very plastic; common fine and medium roots; common fine interstitial and few fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (10 to 20 inches thick)

Bt3—25 to 41 inches; light brown (7.5YR 6/4) gravelly clay loam, brown (7.5YR 4/4) moist; strong medium subangular blocky structure; hard, firm, sticky and plastic; common thin clay films on faces of peds and lining pores; common fine and medium roots; common fine interstitial and tubular pores; 25 percent very fine pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (10 to 25 inches thick)

Bq1—41 to 52 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; massive; hard, friable, slightly sticky and slightly plastic; 30 percent weakly cemented durinodes; few fine roots; many fine interstitial pores; mildly alkaline (pH 7.8); clear wavy boundary. (8 to 12 inches thick)

Bq2—52 to 63 inches; very pale brown (10YR 7/4) loam, brown (10YR 5/4) moist; massive; very hard, brittle, nonsticky and nonplastic; few fine roots; many fine interstitial and tubular pores; thin strata containing 20 percent very fine pebbles; weak continuous silica cementation; mildly alkaline (pH 7.8).

Type location: Elko County, Nevada; about 14 miles southeast of the Wildhorse Reservoir, about 660 feet west of the northeast corner of sec. 15, T. 42 N., R. 57 E.; on a south-facing hillside about 300 feet east of a ranch road; north latitude of 41 degrees, 32 minutes, 24 seconds; west longitude of 115 degrees, 31 minutes, 26 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early July through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 10 to 16 inches, including the upper part of the argillic horizon

Depth to the Bq horizon: 40 to 60 inches

Control section: Clay content—35 to 50 percent; content of rock fragments—35 to 60 percent, mainly pebbles and cobbles

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—platy or subangular blocky
- Reaction—slightly acid to mildly alkaline

Bt horizon:
- Hue—7.5YR or 10YR
- Value—5 to 7 dry, 3 to 5 moist; darker values common only in the upper part of the horizon
- Texture—very cobbly clay, very cobbly clay loam, or very gravelly clay in the upper part and mainly gravelly clay loam, very gravelly clay, or very cobbly clay in the lower part; loam at a depth of more than 35 inches in some pedons
- Reaction—slightly acid to mildly alkaline

Bq horizon:
- Cementation—20 to 40 percent durinodes or weak continuous silica cementation

Other features—some pedons have no durinodes or weak silica cementation, but have silica coatings or pendants on rock fragments

Kodra Series

The Kodra series consists of well drained soils that are moderately deep to a strongly cemented duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. The soils are on fan piedmont remnants. Slopes are 0 to 8 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Coarse-loamy, mixed, mesic Haploxerollic Durorthids

Typical pedon: Kodra loam, 0 to 4 percent slopes:

A—0 to 4 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate thin and medium platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine and few medium vesicular pores; moderately alkaline (pH 8.2); abrupt smooth boundary. (3 to 5 inches thick)

Bw—4 to 11 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial and few fine tubular pores; moderately alkaline (pH 8.2); clear wavy boundary. (3 to 15 inches thick)

Bqk—11 to 22 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; very hard, very firm, slightly sticky and slightly plastic; few fine roots; few very fine interstitial pores; weak continuous silica and lime cementation; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (11 to 17 inches thick)

Bqkm—22 to 44 inches; light yellowish brown (10YR 6/4), strongly cemented duripan, brown (10YR 4/3) moist; discontinuous silica laminae; common medium prominent dusky red (2.5YR 3/2 moist) mottles; very hard, very firm; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary. (16 to 25 inches thick)

2Cq—44 to 60 inches; light yellowish brown (10YR 6/4) sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; common very fine interstitial pores; weak discontinuous cementation; strongly effervescent; strongly alkaline (pH 8.6)

Type location: Elko County, Nevada; about 25 miles south and 2 miles east of Carlin, about 2,200 feet south of the northwest corner of sec. 36, T. 29 N., R. 52 E.; north latitude of 40 degrees, 21 minutes, 15 seconds; west longitude of 116 degrees, 03 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 51 degrees F

Depth to the Bqk horizon: 10 to 16 inches

Depth to a duripan: 20 to 30 inches

Control section: Clay content—12 to 18 percent; content of rock fragments—0 to 15 percent

A horizon:
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Other features—an Ap horizon in some pedons

Bw horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3 dry, 3 or 4 moist
- Content of rock fragments—0 to 15 percent
- Reaction—moderately alkaline or strongly alkaline
- Texture—loam or sandy loam
- Structure—subangular blocky, prismatic, or massive

Bqk horizon:
- Value—6 to 8 dry, 4 to 6 moist
- Consistence—slightly hard to very hard
- Reaction—moderately alkaline or strongly alkaline
- Effervescence—slightly effervescent to strongly effervescent
- Calcium carbonate equivalent—less than 15 percent
- Other features—durinodes or weak continuous silica cementation

Bqkm horizon:
- Value—6 or 7 dry
- Chroma—3 or 4
- Reaction—moderately alkaline or strongly alkaline
- Other features—mottles in some pedons

2Cq horizon:
- Value—6 or 7 dry
- Chroma—3 or 4
- Texture—stratified silt loam to sand in most pedons
- Content of rock fragments—0 to 15 percent
- Reaction—moderately alkaline or strongly alkaline
- Effervescence—slightly effervescent to strongly effervescent

Leevan Series

The Leevan series consists of moderately deep, well drained soils that formed in residuum and colluvium

derived from welded tuff, rhyolite, sandstone, shale, or conglomerate. These soils are on the side slopes of hills and mountains. Slopes are 8 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Typical pedon: Leevan cobbly loam, 15 to 50 percent slopes, in an area of the Leevan-Cleavage-Arcia association:

A1—0 to 5 inches; grayish brown (10YR 5/2) cobbly loam, very dark brown (10YR 2/2) moist; weak very thin and thin platy structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; many fine and very fine interstitial pores; 10 percent pebbles and 10 percent cobbles; neutral (pH 7.0); clear wavy boundary. (3 to 7 inches thick)

A2—5 to 9 inches; grayish brown (10YR 5/2) gravelly clay loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; many fine roots; many fine and very fine interstitial pores; 15 percent pebbles; neutral (pH 7.0); clear wavy boundary. (3 to 7 inches thick)

Bt1—9 to 14 inches; brown (10YR 4/3) gravelly clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong medium angular blocky; hard, firm, very sticky and very plastic; many fine roots; common fine interstitial and tubular pores; continuous thick clay films on faces of peds and lining pores; organic stains coating ped surfaces in the upper part; 25 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (4 to 12 inches thick)

Bt2—14 to 24 inches; brown (10YR 4/3) very gravelly clay, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; common fine roots; common fine interstitial and tubular pores; continuous thick clay films on faces of peds and lining pores; 40 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (8 to 18 inches thick)

R—24 inches; hard rhyolite that is fractured in the upper part.

Type location: Elko County, Nevada; south of a road in SE¼NE¼SW¼ sec. 25, T. 28 N., R. 53 E.; north latitude of 40 degrees, 17 minutes, 02 seconds; west longitude of 115 degrees, 56 minutes, 35 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist from winter to early summer

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches

Thickness of the solum and depth to bedrock: 20 to 40 inches, typically less than 30 inches

Control section: Clay content—40 to 50 percent; content of rock fragments—averages 35 to 50 percent

Bedrock fractures: Clay from the overlying horizon commonly lining fracture planes

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—platy, granular, or subangular blocky

Bt1 horizon:
- Clay content—40 to 50 percent
- Content of rock fragments—20 to 35 percent

Bt2 horizon:
- Hue—7.5YR or 10YR
- Value—4 or 5 dry, 3 or 4 moist
- Chroma—3 to 6
- Clay content—40 to 50 percent
- Reaction—neutral or mildly alkaline
- Content of rock fragments—averages 40 to 65 percent, mainly pebbles
- Other features—the upper part nearly free of pebbles in some pedons; common rock fragment interface between the A and B horizons

Lerrow Series

The Lerrow series consists of moderately deep, well drained soils that formed in residuum derived from welded tuff, andesite, rhyolite, shale, quartzite, or chert. These soils are on hills and mountains. Slopes are 4 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Aridic Argixerolls

Typical pedon: Lerrow gravelly loam, 4 to 15 percent slopes, in an area of the Akler-Lerrow association:

A1—0 to 1 inch; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine and few fine vesicular pores; 20

percent pebbles; neutral (pH 6.8); clear smooth boundary. (1 to 3 inches thick)

A2—1 to 5 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine tubular pores; 20 percent pebbles; neutral (pH 7.1); clear smooth boundary. (1 to 7 inches thick)

Bt1—5 to 15 inches; brown (10YR 5/3) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few fine roots; many very fine tubular pores; common thin clay films on faces of peds; 15 percent pebbles; neutral (pH 7.1); clear wavy boundary. (4 to 11 inches thick)

Bt2—15 to 24 inches; yellowish brown (10YR 5/4) cobbly clay, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine and few fine roots; many moderately thick clay films on faces of peds and lining pores; 10 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear wavy boundary. (5 to 11 inches thick)

Bt3—24 to 32 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong fine and medium prismatic structure; very hard, firm, very sticky and very plastic; common very fine roots; few very fine interstitial pores; many stress surfaces and many moderately thick clay films on faces of peds and lining pores; 15 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary. (6 to 9 inches thick)

Cr—32 to 41 inches; weathered andesite; common thin lime coatings and clay films on fracture planes.

Type location: Elko County, Nevada; about 100 feet north and 1,100 feet east of the southwest corner of sec. 24, T. 39 N., R. 53 E.; north latitude of 41 degrees, 14 minutes, 58 seconds; west longitude of 115 degrees, 57 minutes, 43 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist from late fall to spring

Soil temperature: 45 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches, including the upper part of the argillic horizon

Depth to paralithic contact: 20 to 40 inches

Control section: Clay content—averages 35 to 50 percent; content of rock fragments—15 to 35 percent, mainly cobbles and pebbles

A horizon:
- Chroma—2 or 3
- Structure—weak or moderate thin to medium platy or medium subangular blocky

Bt1 horizon:
- Chroma—2 or 3
- Clay content—30 to 40 percent
- Content of rock fragments—15 to 35 percent, mainly pebbles
- Structure—weak or moderate subangular blocky
- Texture—clay loam or gravelly clay loam

Bt2 and Bt3 horizons:
- Chroma—3 or 4 moist
- Clay content—40 to 55 percent
- Texture—clay, gravelly clay, or cobbly clay
- Content of rock fragments—10 to 20 percent pebbles, 5 to 15 percent cobbles, and 0 to 5 percent stones
- Structure—angular blocky in the upper part and weak to strong fine to coarse prismatic in the lower part
- Reaction—neutral or mildly alkaline

Cr horizon:
- Effervescence—none or slight

Linkup Series

The Linkup series consists of shallow, well drained soils that formed in residuum and colluvium derived from andesite, rhyolite, conglomerate, shale, sandstone, and welded tuff. These soils are on the crests and side slopes of hills and mountains. Slopes are 4 to 30 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Xerollic Haplargids

Typical pedon: Linkup very cobbly loam, 15 to 30 percent slopes, in an area of the Linkup-Roca-Vanwyper association:

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; moderate medium and thick platy structure; slightly hard, very friable, slightly sticky and plastic; many very fine roots; many very fine vesicular and tubular pores; 20 percent pebbles, 13 percent cobbles, and 2 percent stones; neutral (pH 6.8); abrupt wavy boundary. (3 to 8 inches thick)

Bt1—3 to 8 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate

fine and medium subangular blocky structure; hard, very friable, sticky and very plastic; many very fine and fine and few medium roots; many very fine tubular pores; few thin clay films on faces of peds; 10 percent pebbles and 30 percent cobbles; neutral (pH 7.0); abrupt wavy boundary. (4 to 5 inches thick)

Bt2—8 to 12 inches; pale brown (10YR 6/3) cobbly clay, brown (10YR 4/3) moist; moderate medium and coarse prismatic structure parting to strong medium angular blocky; very hard, friable, very sticky and very plastic; few very fine and fine exped roots; common very fine tubular pores; many prominent pressure faces; 5 percent pebbles and 15 percent cobbles; neutral (pH 7.0); clear wavy boundary. (3 to 6 inches thick)

Bt3—12 to 16 inches; light yellowish brown (10YR 6/4) cobbly clay, yellowish brown (10YR 5/4) moist; moderate coarse prismatic structure parting to strong medium and coarse subangular blocky; very hard, firm, very sticky and very plastic; few very fine and fine exped roots; few very fine tubular pores; many prominent slickensides; 10 percent pebbles and 15 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (0 to 4 inches thick)

R—16 inches; sandstone.

Type location: Elko County, Nevada; about 22 miles north of Elko, about 2,200 feet east and 900 feet north of the southwest corner of sec. 29, T. 37 N., R. 56 E.; north latitude of 41 degrees, 03 minutes, 43 seconds; west longitude of 115 degrees, 41 minutes, 27 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through early November, moist in places in winter and spring

Soil temperature: 45 to 47 degrees F

Thickness of the solum and depth to bedrock: 14 to 20 inches

Control section: Clay content—averages 35 to 50 percent; content of rock fragments—10 to 35 percent, mainly pebbles and cobbles; sand fraction—20 to 45 percent

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate very thin to thick platy or subangular blocky
- Consistence—soft or slightly hard when dry
- Reaction—slightly acid or neutral

Bt horizon:
- Hue—7.5YR or 10YR
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—3 to 6
- Texture—in the upper part, mainly gravelly clay, clay loam, gravelly clay loam, or cobbly clay loam but very cobbly clay loam in some pedons; in the lower part, clay, gravelly clay, or cobbly clay
- Clay content—27 to 45 percent in the upper part and 40 to 55 percent in the lower part
- Structure—fine to coarse prismatic or subangular or angular blocky
- Consistence—hard or very hard when dry
- Reaction—slightly acid to mildly alkaline, becoming more alkaline with increasing depth
- Other features—lime coatings on rock fragments in the lower part in some pedons

As it occurs in this survey area, this series is a taxadjunct because the soil temperature of unit 780 is slightly higher than is defined as the range for the Linkup series.

Loncan Series

The Loncan series consists of moderately deep, well drained soils that formed in residuum and colluvium derived mainly from chert or sedimentary and volcanic rock sources. These soils are on hills and mountain side slopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Haploxerolls

Typical pedon: Loncan very gravelly loam, 30 to 50 percent slopes, in an area of the Cleavage-Cleavage, very cobbly-Loncan association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; slightly hard, very friable, slightly sticky and plastic; many very fine roots; many very fine tubular pores; 50 percent pebbles and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary. (2 to 10 inches thick)

A2—3 to 8 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine roots; many very fine tubular pores; 50 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (4 to 6 inches thick)

A3—8 to 14 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine and medium roots; many very fine tubular and interstitial pores; 50 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (0 to 7 inches thick)

C1—14 to 19 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; many very fine tubular and interstitial pores; 40 percent pebbles; neutral (pH 7.2); clear wavy boundary. (5 to 9 inches thick)

2C2—19 to 31 inches; pale brown (10YR 6/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine roots; many very fine tubular pores; 40 percent pebbles and 30 percent cobbles; neutral (pH 7.2); abrupt irregular boundary. (0 to 12 inches thick)

2R—31 inches; fractured conglomerate.

Type location: Elko County, Nevada; about 14 miles north of Elko, about 400 feet north and 2,200 feet east of the southwest corner of sec. 35, T. 37 N., R. 55 E.; north latitude of 41 degrees, 02 minutes, 48 seconds; west longitude of 115 degrees, 44 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through mid-October, moist in places in winter and spring

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches

Depth to bedrock: 21 to 38 inches

Control section: Clay content—18 to 27 percent; content of rock fragments—50 to 70 percent pebbles and cobbles and very few stones

Other features: Some pedons have an AC horizon.

A horizon:
- Value—4 or 5 dry
- Chroma—2 or 3
- Structure—platy, subangular blocky, or granular

C horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Texture—very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam, or extremely gravelly loam
- Content of rock fragments—40 to 70 percent pebbles and cobbles

Loncan Variant

The Loncan Variant consists of very deep, moderately well drained soils that formed in alluvium derived from mixed rock sources. These soils are on inset fans, on fan skirts, and in narrow drainageways on hills. Slopes are 0 to 8 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Aridic Duric Haploxerolls

Typical pedon: Loncan Variant loam, 2 to 8 percent slopes, in an area of the Grina-Lyra-Loncan Variant association:

A1—0 to 2 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (2.5Y 3/2) moist; moderate thick and very thick platy structure; soft, very friable, sticky and plastic; common very fine roots; many very fine interstitial and vesicular and common very fine tubular pores; 5 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (1 to 4 inches thick)

A2—2 to 7 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (2.5Y 3/2) moist; common fine and medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine and fine and common medium roots; common very fine and fine and few medium tubular pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (2 to 7 inches thick)

A3—7 to 12 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (2.5Y 3/2) moist; weak medium prismatic structure parting to moderate fine and medium subangular blocky; slightly hard, friable, sticky and plastic; common very fine and fine and few medium roots; few very fine and fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); abrupt wavy boundary. (2 to 8 inches thick)

Bq1—12 to 18 inches; grayish brown (2.5Y 5/2) clay loam, very dark grayish brown (2.5Y 3/2) moist; weak medium and coarse prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, sticky and plastic; few very fine to medium roots; common very fine and fine tubular pores; 35 percent hard, firm durinodes 10 to 25 millimeters thick; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (5 to 9 inches thick)

Bq2—18 to 38 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; massive;

hard, friable, sticky and plastic; few very fine and fine roots; common very fine and few fine tubular pores; 50 percent hard, firm durinodes 10 to 25 millimeters thick; 5 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (15 to 25 inches thick)

Bqk—38 to 60 inches; light gray (2.5Y 7/2) loam, dark grayish brown (2.5Y 4/2) moist; few fine distinct yellowish red (5YR 5/6 moist) and reddish brown (5YR 4/4 moist) relict mottles; massive; hard, firm, sticky and plastic; few very fine roots; many very fine and fine tubular pores; 5 percent pebbles; common thin lime films on sand grains and pebbles; violently effervescent; weak continuous silica cementation; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 30 miles north of Elko, about 2,200 feet west and 1,700 feet south of the northeast corner of sec. 29, T. 38 N., R. 56 E.; north latitude of 41 degrees, 09 minutes, 23 seconds; west longitude of 115 degrees, 41 minutes, 12 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 47 to 49 degrees F

Thickness of the mollic epipedon: 12 to 19 inches, including the upper part of the Bq horizon

Depth to silica cementation: 10 to 19 inches

Control section: Clay content—averages 18 to 30 percent; content of rock fragments—0 to 5 percent, mainly pebbles

A horizon:
- Hue—10YR or 2.5Y
- Structure—granular, platy, subangular blocky, or prismatic
- Reaction—mildly alkaline or moderately alkaline

Bq horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 3 or 4 moist
- Texture—loam or clay loam
- Structure—prismatic in the upper part and massive in the lower part
- Reaction—mildly alkaline or moderately alkaline, becoming more alkaline with increasing depth
- Effervescence—noneffervescent in the upper part and violently effervescent in the lower part
- Other features—20 to 60 percent hard, firm durinodes 10 to 25 millimeters thick in the upper part; weak continuous silica cementation in the lower part

Loomis Series

The Loomis series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium derived from rhyolite, andesite, or conglomerate. These soils are on hills. Slopes are 4 to 30 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids

Typical pedon: Loomis very cobbly loam, 15 to 30 percent slopes, in an area of the Norfork-Loomis-Chiara association:

A—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; strong thick platy structure; soft, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 30 percent pebbles and 20 percent cobbles; neutral (pH 7.0); abrupt smooth boundary. (2 to 3 inches thick)

Bt1—2 to 4 inches; pale brown (10YR 6/3) cobbly clay loam, dark brown (10YR 3/3) moist; weak very fine subangular blocky structure; soft, very friable, sticky and plastic; common very fine and few fine roots; common very fine tubular pores; few thin clay films on faces of peds and lining pores; 10 percent pebbles and 15 percent cobbles; neutral (pH 7.0); clear wavy boundary. (2 to 4 inches thick)

Bt2—4 to 7 inches; pale brown (10YR 6/3) extremely cobbly clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and very plastic; few very fine and fine roots; common very fine tubular pores; continuous thin clay films on faces of peds and lining pores; 35 percent pebbles and 25 percent cobbles; neutral (pH 7.2); clear wavy boundary. (3 to 7 inches thick)

Bt3—7 to 11 inches; pale brown (10YR 6/3) very cobbly clay, brown (10YR 4/3) moist; strong fine and medium subangular blocky structure; hard, very friable, sticky and very plastic; few very fine roots; few very fine tubular pores; continuous moderately thick clay films on faces of peds and lining pores; 25 percent pebbles and 30 percent cobbles; mildly alkaline (pH 7.4); abrupt irregular boundary. (3 to 7 inches thick)

R—11 inches; fractured rhyolite; moderately thick clay films on fracture surfaces in the upper 2 inches; few very fine roots along fractures.

Type location: Elko County, Nevada; about 36 miles north of Elko, about 1,500 feet north and 400 feet west of the southeast corner of sec. 14, T. 39 N., R.

57 E.; north latitude of 41 degrees, 16 minutes, 03 seconds; west longitude of 115 degrees, 30 minutes, 32 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring
Soil temperature: 47 to 52 degrees F
Depth to bedrock: 8 to 14 inches
Reaction: Neutral or mildly alkaline
Control section: Clay content—averages 55 percent; content of rock fragments—35 to 75 percent, as much as 40 percent of which is cobbles

A horizon:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 or 3
Structure—moderate or strong platy or granular

Bt horizon:
Value—5 or 6 dry, 3 to 5 moist
Chroma—3 or 4
Texture—mainly very cobbly or extremely cobbly clay or clay loam
Clay content—35 to 40 percent in the upper part and 40 to 60 percent in the lower part
Content of rock fragments—mainly 35 to 75 percent, as much as 40 percent of which is cobbles; less than 35 percent rock fragments in the Bt1 horizon in some pedons
Structure—moderate subangular or angular blocky or weak to strong prismatic
Consistence—soft to very hard when dry; very friable or friable when moist; sticky or very sticky and plastic or very plastic when wet
Other features—in some pedons few fine gypsum filaments in the lower part

Lyra Series

The Lyra series consists of shallow, well drained soils that formed in residuum and colluvium derived from shale, tuff, sandstone, or conglomerate. These soils are on the side slopes of mountains and hills. Slopes are 15 to 30 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid, shallow Aridic Argixerolls

Typical pedon: Lyra gravelly loam, 15 to 30 percent slopes, in an area of the Grina-Lyra-Loncan Variant association:

A—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and plastic; common very fine roots; many very fine interstitial pores; 20 percent pebbles; neutral (pH 7.0); abrupt smooth boundary. (2 to 4 inches thick)

Bt1—2 to 7 inches; brown (10YR 5/3) extremely gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine and few medium roots; many very fine interstitial and tubular pores; few thin clay films on faces of peds; 60 percent pebbles; neutral (pH 7.1); clear wavy boundary. (3 to 7 inches thick)

Bt2—7 to 12 inches; brown (10YR 5/3) extremely cobbly clay, dark brown (10YR 3/3) moist; strong thin and medium platy rock structure; hard, very friable, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; continuous thin clay films on faces of peds; 50 percent pebbles and 40 percent cobbles; mildly alkaline (pH 7.4); abrupt smooth boundary. (2 to 9 inches thick)

Cr—12 to 14 inches; foliated, fractured, soft shale; few very fine roots along fracture planes; common fine lime filaments on the bottom of plates; neutral (pH 7.2).

Type location: Elko County, Nevada; about 30 miles north of Elko, about 1,900 feet east and 2,300 feet south of the northwest corner of sec. 29, T. 38 N., R. 56 E.; north latitude of 41 degrees, 09 minutes, 17 seconds; west longitude of 115 degrees, 50 minutes, 26 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring
Soil temperature: 42 to 47 degrees F
Thickness of the mollic epipedon: 7 to 12 inches, including all or part of the argillic horizon
Depth to paralithic contact: 10 to 14 inches
Control section: Clay content—averages 27 to 35 percent; content of rock fragments—averages 55 to 70 percent

A horizon:
Hue—10YR or 2.5Y
Chroma—2 or 3
Structure—moderate or strong very thin to medium platy or granular

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist

Chroma—2 or 3
Clay content—27 to 45 percent
Texture—very gravelly or extremely gravelly clay loam in the upper part and extremely cobbly clay or extremely cobbly clay loam in the lower part
Structure—subangular blocky or platy rock
Consistence—slightly hard or hard when dry; sticky or very sticky and plastic or very plastic when wet
Reaction—neutral to moderately alkaline, becoming more alkaline with increasing depth

Cr horizon:
Other features—few fine lime coatings on the sides and bottom of the fractured paralithic bedrock in the upper 4 to 6 inches

Mahala Series

The Mahala series consists of moderately deep, well drained soils that formed in a thin loess mantle over residuum derived from tuff. These soils are in rock-core areas of the side slopes on fan piedmont remnants. Slopes are 15 to 50 percent. The mean annual temperature is about 47 degrees F, and the mean annual precipitation is about 11 inches.

Taxonomic class: Fine, montmorillonitic, mesic Xerollic Paleargids

Typical pedon: Mahala very gravelly clay loam, 15 to 50 percent slopes, in an area of the Tustell-Gance-Mahala association:

A—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; strong thick platy structure; soft, very friable, sticky and plastic; common very fine roots; common very fine vesicular and few very fine interstitial pores; 55 percent pebbles; neutral (pH 7.2); abrupt smooth boundary. (1 to 2 inches thick)

AB—2 to 4 inches; light brownish gray (10YR 6/2) gravelly clay loam, dark grayish brown (10YR 4/2) moist; strong very fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and few fine roots; common very fine tubular pores; many thin clay films on faces of peds and lining tubular pores; 30 percent pebbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (0 to 2 inches thick)

2Bt1—4 to 11 inches; light brownish gray (10YR 6/2) gravelly clay, brown (10YR 5/3) moist; strong medium and coarse prismatic structure; very hard, friable, very sticky and very plastic; few very fine to medium roots; common very fine tubular pores; many stress surfaces; 15 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 9 inches thick)

2Bt2—11 to 23 inches; light brownish gray (10YR 6/2) clay, brown (10YR 5/3) moist; weak coarse prismatic structure parting to moderate fine and medium subangular blocky; very hard, friable, very sticky and very plastic; few fine and very fine roots; few very fine tubular pores; 10 percent pebbles; many stress surfaces and many thin clay films lining pores; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary. (5 to 12 inches thick)

2Btk—23 to 30 inches; light gray (10YR 7/2) clay, pale brown (10YR 6/3) moist; weak medium subangular blocky structure; hard, very friable, sticky and very plastic; few very fine roots; few very fine tubular pores; few thin clay films on faces of peds and lining tubular pores; few fine soft lime masses as much as 20 inches thick; slightly effervescent; moderately alkaline (pH 8.0); gradual wavy boundary.

2Cr—30 to 60 inches; white (10YR 8/2) tuff, pale brown (10YR 6/3) moist; few very fine tubular pores; slightly effervescent; common medium soft lime masses and threads; moderately alkaline (pH 8.0).

Type location: Elko County, Nevada; about 27 miles north of Elko, about 1,300 feet east and 1,600 feet south of the northwest corner of sec. 20, T. 39 N., R. 56 E.; north latitude of 41 degrees, 15 minutes, 34 seconds; west longitude of 115 degrees, 41 minutes, 52 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring
Soil temperature: 47 to 50 degrees F
Depth to carbonates: 14 to 25 inches
Thickness of the solum and depth to weathered bedrock: 20 to 40 inches
Control section: Clay content—averages 40 to 60 percent; content of rock fragments—0 to 20 percent, mainly pebbles
Other features: A thin AB horizon in some pedons

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—weak to strong very thin to thick platy, very fine granular, or very fine or fine subangular blocky

E horizon (if it occurs):
Value—6 or 7 dry

Other features—common bleached sand grains and common fine distinct mottles

2Bt horizon:
Value—5 or 6 dry, 4 to 6 moist
Chroma—2 to 4 dry, 3 or 4 moist
Texture—clay or gravelly clay
Structure—weak to strong medium or coarse prismatic, weak or moderate fine to coarse subangular blocky, or prismatic parting to angular or subangular blocky
Reaction—neutral to moderately alkaline
Other features—bleached sand grains commonly capping prisms

2Btk horizon:
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 to 4
Texture—mainly clay or clay loam but gravelly clay loam in some pedons

2Cr horizon:
Lime—few or common fine or medium coatings of lime, soft masses of lime, and threads of lime on fracture planes
Effervescence—none or slight
Reaction—mildly alkaline or moderately alkaline

Manard Series

The Manard series consists of well drained soils that are moderately deep to an indurated duripan. These soils formed in residuum and colluvium derived from welded tuff. They are on plateaus. Slopes are 2 to 8 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 41 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Typic Durixerolls

Typical pedon: Manard silt loam, 2 to 8 percent slopes, extremely stony, in an area of the Igdell-Manard-Ebic association:

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear smooth boundary. (2 to 4 inches thick)

A2—2 to 7 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many fine and common very fine tubular pores; 5 percent pebbles; neutral (pH 7.2); abrupt smooth boundary. (0 to 8 inches thick)

Bt1—7 to 15 inches; dark brown (10YR 4/3) clay, dark brown (7.5YR 3/4) moist; strong medium prismatic structure parting to strong medium subangular blocky; hard, firm, sticky and plastic; common fine and few medium roots; few fine and medium tubular pores; many thick clay skins on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (7 to 12 inches thick)

Bt2—15 to 22 inches; dark brown (10YR 4/3) clay, dark brown (7.5YR 3/4) moist; strong medium prismatic structure parting to strong medium subangular blocky; hard, firm, sticky and plastic; few fine and medium roots; few fine tubular pores; many thick clay skins on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (4 to 7 inches thick)

Bqkm—22 to 24 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/3) moist; massive; very hard, very firm; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (0.75 inch to 4 inches thick)

R—24 inches; welded tuff.

Type location: Elko County, Nevada; about 1.3 miles north of Diamond A Ranch, about 500 feet west and 750 feet south of the northeast corner of sec. 5, T. 47 N., R. 58 E.; north latitude of 41 degrees, 59 minutes, 40 seconds; west longitude of 115 degrees, 26 minutes, 10 seconds

Range in Characteristics

Soil moisture: Usually moist; dry for 50 to 70 consecutive days in summer and fall
Soil temperature: About 42 to 47 degrees F
Thickness of the mollic epipedon: 7 to 11 inches
Depth to a duripan: 20 to 37 inches
Depth to bedrock: 20 to 38 inches

A horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Reaction—slightly acid or neutral

Bt horizon:
Hue—10YR or 5YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Texture (of the fraction less than 2 millimeters in size)—silty clay loam, clay loam, silty clay, or clay
Clay content—averages 35 to 50 percent
Content of rock fragments—0 to 25 percent
Reaction—slightly acid to mildly alkaline

Bqkm horizon:
Value—6 to 8 dry or moist
Chroma—1 to 3 dry or moist

McIvey Series

The McIvey series consists of very deep, well drained soils that formed in alluvium or colluvium derived from mixed rocks dominated by tuff, shale, sandstone, conglomerate, rhyolite, welded tuff, or andesite. These soils are on fan piedmont remnants and partial ballenas bordering hills and mountains. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Typical pedon: McIvey gravelly loam, 2 to 8 percent slopes, in an area of the Betra-McIvey-Heechee association:

A1—0 to 4 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, friable, nonsticky and nonplastic; many very fine and few fine roots; many very fine and few fine vesicular pores; 15 percent pebbles, 5 percent cobbles, and 2 percent stones; neutral (pH 7.3); clear smooth boundary. (2 to 8 inches thick)

A2—4 to 12 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse angular blocky structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and few fine and coarse roots; many very fine and few fine discontinuous tubular pores; 25 percent pebbles, 5 percent cobbles, and 2 percent stones; neutral (pH 7.2); clear wavy boundary. (5 to 12 inches thick)

2Bt1—12 to 24 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; common very fine roots; common very fine and few discontinuous tubular pores; many distinct clay films lining pores and on faces of peds; 40 percent pebbles and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary. (3 to 12 inches thick)

2Bt2—24 to 42 inches; strong brown (7.5YR 5/6) extremely cobbly clay, dark brown (7.5YR 4/4) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, firm, very sticky and plastic; few very fine roots; many very fine and few fine discontinuous tubular pores; many faint clay films lining pores and on faces of peds; 40 percent pebbles, 25 percent cobbles, and 5 percent stones; neutral (pH 7.2); gradual wavy boundary. (5 to 18 inches thick)

2Bt3—42 to 60 inches; reddish yellow (7.5YR 6/6) extremely cobbly clay loam, dark brown (7.5YR 4/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; many very fine and few fine continuous tubular pores; common faint clay films lining pores and on faces of peds; 45 percent pebbles, 20 percent cobbles, and 15 percent stones; neutral (pH 7.2).

Type location: Elko County, Nevada; about 20 miles southeast of Elko, about 1,055 feet east and 530 feet north of the southwest corner of sec. 4, T. 31 N., R. 57 E.; north latitude of 40 degrees, 35 minutes, 35 seconds; west longitude of 115 degrees, 33 minutes, 47 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist in winter and spring

Soil temperature: 42 to 47 degrees F

Thickness of the mollic epipedon: 12 to 20 inches, not including the argillic horizon

Control section: Clay content—averages 35 to 50 percent; content of rock fragments—averages 35 to 60 percent, mainly pebbles and cobbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3
Structure—granular, platy, or angular or subangular blocky

2Bt1 horizon:
Hue—7.5YR or 10YR
Value—3 or 4 moist
Chroma—3 or 4
Texture—very gravelly or gravelly clay loam
Clay content—30 to 40 percent
Content of rock fragments—15 to 40 percent pebbles and 0 to 10 percent cobbles
Reaction—slightly acid or neutral
Other features—moist and dry colors do not meet the requirements for a mollic epipedon

2Bt2 and 2Bt3 horizons:
Hue—7.5YR or 10YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 to 6
Texture—mainly very gravelly, very cobbly, or extremely cobbly clay; extremely cobbly clay loam at a depth of more than 40 inches in some pedons

Clay content—commonly 40 to 50 percent, but 30 to 40 percent in the lower part in some pedons
Content of rock fragments—35 to 50 percent pebbles, 5 to 25 percent cobbles, and 0 to 15 percent stones
Structure—mainly subangular or angular blocky or prismatic, but commonly massive in the lower part
Reaction—slightly acid or neutral

Moranch Series

The Moranch series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on fan skirts and alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents

Typical pedon: Moranch silt loam, in an area of the Moranch-Ocala-Orovada association:

A1—0 to 2 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; many very fine vesicular pores; violently effervescent; very strongly alkaline (pH 9.6); abrupt smooth boundary. (1 to 3 inches thick)

A2—2 to 5 inches; light gray (10YR 7/2) silt loam, dark brown (10YR 4/3) moist; strong thin platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and few medium roots; common fine continuous tubular pores and common very fine and few fine discontinuous random interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary. (2 to 5 inches thick)

C—5 to 10 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; weak medium platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine roots; common very fine and few fine discontinuous random interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary. (2 to 7 inches thick)

Cq1—10 to 20 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/3) moist; moderate medium platy structure; slightly hard, firm, nonsticky and nonplastic; common very fine roots; common very fine and few fine discontinuous random interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); weak discontinuous silica cementation; clear smooth boundary. (5 to 15 inches thick)

Cq2—20 to 45 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; massive; hard, firm, brittle, nonsticky and nonplastic; few very fine roots; common very fine and few fine discontinuous random interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); weak continuous silica cementation; clear smooth boundary. (10 to 30 inches thick)

Cq3—45 to 61 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; very hard, very brittle, nonsticky and nonplastic; few very fine roots along some horizontal plates; common very fine discontinuous random interstitial pores; violently effervescent; weak continuous silica cementation; very strongly alkaline (pH 9.6).

Type location: Elko County, Nevada; about 24 miles northeast of Elko, about 6.9 miles west of Deeth interchange and 330 feet south of Interstate 80, about 3,200 feet west of the projected southeast corner of sec. 1, T. 36 N., R. 58 E.; north latitude of 41 degrees, 01 minute, 40 seconds; west longitude of 115 degrees, 23 minutes, 01 second

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places from late fall to mid-spring
Soil temperature: 47 to 50 degrees F
Depth to the Cq horizon: 5 to 15 inches
Control section: Clay content—8 to 18 percent; sand fraction—less than 15 percent fine sand or coarser sand
Other features: Nonsaline or slightly saline in the A horizon and slightly saline or moderately saline throughout the rest of the profile; sodium absorption rate of more than 50 throughout the profile

A horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3
Structure—thin to thick or massive

C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—silt loam or very fine sandy loam
Clay content—8 to 18 percent

Cq horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4

Texture—silt loam or very fine sandy loam
Clay content—8 to 18 percent
Other features—weak continuous silica cementation in the part of the horizon at a depth of less than 40 inches

Ninemile Series

The Ninemile series consists of shallow, well drained soils that formed in residuum and colluvium derived from rhyolite and welded tuff and a minor component of volcanic ash. These soils are on hills. Slopes are 8 to 15 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical pedon: Ninemile gravelly loam, 8 to 15 percent slopes, in an area of the Ninemile-Quarz-Rock outcrop association:

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many medium and coarse vesicular and many fine and very fine interstitial pores; 20 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary. (1 to 3 inches thick)

A2—2 to 6 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; soft, very friable, slightly sticky and slightly plastic; common medium and few fine roots; many fine and very fine interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (0 to 4 inches thick)

Bt1—6 to 8 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, firm, sticky and plastic; common medium and fine roots; common medium and fine interstitial pores; common stress surfaces and common moderately thick clay films lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary. (0 to 10 inches thick).

Bt2—8 to 12 inches; pale brown (10YR 6/3) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; hard, very firm, very sticky and very plastic; common medium and fine roots; common medium and fine interstitial pores; thick clay films lining pores; 22 percent pebbles; mildly alkaline (pH 7.8); clear smooth boundary. (3 to 9 inches thick).

R—12 inches; rhyolite; weathered or fractured in 1 to 2 inches in some parts of the lithic contact.

Type location: Elko County, Nevada; about 15 miles southwest of the Charleston Reservoir, about 1,100 feet north and 2,200 feet west of the southeast corner of sec. 31, T. 42 N., R. 56 E.; north latitude of 41 degrees, 29 minutes, 02 seconds; west longitude of 115 degrees, 41 minutes, 53 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through early October, moist in places in winter and spring
Soil temperature: 44 to 47 degrees F
Thickness of the mollic epipedon: 6 to 16 inches, commonly including part or all of the argillic horizon
Reaction: Slightly acid to mildly alkaline
Depth to bedrock: 10 to 20 inches
Control section: Clay content—averages 35 to 60 percent; content of rock fragments—0 to 35 percent

A horizon:
Value—mainly 3 to 5 dry, 2 or 3 moist
Chroma—1 to 3
Structure—thin to thick platy or granular
Other features—value of 6 and massive in the upper 1 or 2 inches in some pedons

Bt horizon:
Hue—5YR, 7.5YR, or 10YR
Value—3 to 6 dry, 2 to 4 moist; value of 6 dry and 4 moist in the lower part
Chroma—2 to 4; chroma of 4 in the lower part
Clay content—40 to 60 percent
Texture—clay or gravelly clay
Content of rock fragments—0 to 30 percent pebbles or cobbles
Structure—moderate or strong subangular or angular blocky or prismatic; massive in the lower part in some pedons

R horizon:
Weathering—weathered in the upper 1 to 3 inches in some pedons where the bedrock is at a depth of less than 15 inches

Nirac Series

The Nirac series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from calcareous sandstone and limestone and a component of loess. These soils are on the side slopes of hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Calcixerolls

Typical pedon: Nirac gravelly silt loam, 30 to 75 percent slopes, in an area of the Nirac-Izod-Izod, very steep association:

A1—0 to 1 inch; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine inped roots; 15 percent pebbles; mildly alkaline (pH 7.8); abrupt wavy boundary. (1 to 4 inches thick)

A2—1 to 6 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and few fine inped roots; common very fine interstitial pores; 15 percent pebbles; violently effervescent; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 7 inches thick)

A3—6 to 14 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine inped roots; few very fine interstitial pores; 15 percent pebbles; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (6 to 10 inches thick)

Bk1—14 to 22 inches; pale brown (10YR 6/3) very gravelly loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and slightly plastic; common very fine and few fine roots; few very fine interstitial pores; 35 percent pebbles and 10 percent cobbles; few thin lime coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (5 to 13 inches thick)

Bk2—22 to 25 inches; very pale brown (10YR 7/3) very gravelly loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine interstitial pores; 45 percent pebbles and 10 percent cobbles; common thin lime coatings on rock fragments; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (2 to 7 inches thick)

2R—25 inches; hard, unfractured, calcareous sandstone.

Type location: Elko County, Nevada; about 9 miles northeast of Carlin, about 10 feet south and 2,000 feet east of the northwest corner of sec. 24, T. 33 N., R. 53 E.; north latitude of 40 degrees, 44 minutes, 20 seconds; west longitude of 115 degrees, 57 minutes, 42 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist from late fall through early summer

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches

Depth to bedrock: 20 to 40 inches

Depth to a calcic horizon: 10 to 17 inches

Control section: Clay content—15 to 25 percent; content of rock fragments—35 to 60 percent pebbles and 0 to 10 percent cobbles

Other features: Content of secondary lime increasing with increasing depth

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Structure—granular, subangular blocky, or massive
- Consistence—soft or slightly hard
- Reaction—mildly alkaline or moderately alkaline

Bk horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—very gravelly loam or very gravelly silt loam
- Clay content—15 to 25 percent
- Content of rock fragments—35 to 60 percent pebbles and 0 to 10 percent cobbles
- Structure—weak subangular blocky or massive
- Calcium carbonate equivalent—25 to 40 percent
- Reaction—moderately alkaline or strongly alkaline

Norfork Series

The Norfork series consists of well drained soils that are shallow over an indurated duripan. These soils formed in loess and a component of volcanic ash and residuum derived from basalt, andesite, and rhyolite. The soils are on the side slopes of hills. Slopes are 2 to 30 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Clayey, montmorillonitic, mesic, shallow Xerollic Durargids

Typical pedon: Norfork very cobbly silt loam, 15 to 30 percent slopes, in an area of the Norfork-Loomis-Chiara association:

A—0 to 2 inches; pale brown (10YR 6/3) very cobbly silt loam, dark brown (10YR 3/3) moist; strong very thin and thin platy structure; soft, very friable, sticky and plastic; few very fine roots; many very fine vesicular pores; 30 percent pebbles and 20 percent cobbles; neutral (pH 7.2); abrupt smooth boundary. (2 to 4 inches thick)

Bt1—2 to 5 inches; pale brown (10YR 6/3) cobbly silty clay loam, brown (10YR 4/3) moist; moderate very fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 15 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary. (2 to 5 inches thick)

Bt2—5 to 9 inches; light yellowish brown (10YR 6/4) gravelly silty clay, yellowish brown (10YR 5/4) moist; weak medium prismatic structure parting to moderate fine and medium subangular blocky; hard, very friable, sticky and very plastic; common very fine and few coarse roots; common very fine tubular pores; continuous thin clay films on faces of peds and lining pores; 30 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (3 to 7 inches thick)

Bqk—9 to 12 inches; very pale brown (10YR 7/3) gravelly silty clay loam, brown (10YR 5/3) moist; massive; hard, friable, sticky and plastic; few very fine roots; few very fine tubular pores; 10 percent strong durinodes 10 to 20 millimeters in diameter; 30 percent pebbles; thin lime coatings on the underside of pebbles; strongly effervescent; weak continuous silica cementation; moderately alkaline (pH 8.4); abrupt wavy boundary. (0 to 4 inches thick)

Bqkm—12 to 24 inches; white (10YR 8/2), indurated duripan, very pale brown (10YR 7/3) moist; massive; extremely hard, extremely firm; continuous horizontal silica laminae 1 to 2 millimeters thick in the upper part and in alternating bands throughout; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary. (5 to 20 inches thick)

R—24 inches; fractured basalt bedrock; strong silica and lime cementation extending into fractures.

Type location: Elko County, Nevada; about 15 miles northwest of Deeth, about 300 feet north and 1,200 feet west of the southeast corner of sec. 14, T. 39 N., R. 57 E.; north latitude of 41 degrees, 15 minutes, 52 seconds; west longitude of 115 degrees, 30 minutes, 43 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to the base of the Bt horizon: 7 to 14 inches

Depth to an indurated duripan: 10 to 20 inches

Depth to bedrock: 21 to 40 inches

Control section: Clay content—35 to 45 percent; content of rock fragments—averages 20 to 30 percent, mainly pebbles but as much as 15 percent cobbles

A horizon:
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—platy or granular
- Consistence—soft or slightly hard, very friable or friable, nonsticky to sticky, nonplastic to plastic
- Reaction—neutral or mildly alkaline.

Bt horizon:
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—gravelly silty clay, gravelly silty clay loam, or cobbly silty clay loam
- Reaction—neutral to moderately alkaline

Bqk horizon (if it occurs):
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4
- Texture—gravelly loam, gravelly silt loam, or gravelly silty clay loam
- Content of rock fragments—20 to 35 percent; as much as 5 percent cobbles
- Reaction—mildly alkaline or moderately alkaline

Ocala Series

The Ocala series consists of very deep, somewhat poorly drained soils that formed in silty alluvium derived from mixed rock sources and a component of volcanic ash. These soils are on stream terraces, flood plains, fan skirts, and alluvial flats. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches, and the mean annual temperature is about 50 degrees F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Halaquepts

Typical pedon: Ocala silt loam, 0 to 2 percent slopes, in an area of the Kelk-Ocala-Moranch association:

A—0 to 4 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 5/3) moist; moderate thin and medium platy structure; slightly hard, very friable, sticky and plastic; many very fine and fine interstitial and vesicular pores; many very fine to medium roots; violently effervescent; very strongly alkaline (pH 9.6); clear wavy boundary.

C1—4 to 10 inches; light gray (2.5Y 7/2) silt loam, brown (10YR 5/3) moist; strong very thin and thin platy structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; many very fine interstitial and vesicular pores; violently effervescent; very strongly alkaline (pH 9.6); clear wavy boundary. (4 to 8 inches thick)

C2—10 to 20 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; moderate very thin platy structure; soft, very friable, sticky and plastic; few

very fine roots; many very fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); clear wavy boundary. (0 to 10 inches thick)

Cqk1—20 to 27 inches; white (10YR 8/2) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, sticky and plastic; few very fine roots; many very fine and fine and common medium tubular pores; 45 percent weak discontinuous silica cementation; strongly effervescent; strongly alkaline (pH 9.0); clear wavy boundary. (3 to 8 inches thick)

Cqk2—27 to 36 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine and common medium tubular pores; weak continuous silica cementation; slightly effervescent; strongly alkaline (pH 8.8); clear wavy boundary. (3 to 14 inches thick)

Cqk3—36 to 44 inches; light gray (10YR 7/2) silt loam, brown (10YR 5/3) moist; common distinct brown (10YR 4/3 moist) and dark reddish brown (5YR 3/4 moist) mottles; massive; very hard, very firm and brittle; common very fine tubular pores; weak continuous silica and lime cementation; slightly effervescent; strongly alkaline (pH 9.0); clear wavy boundary. (5 to 15 inches thick)

Cqk4—44 to 50 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; common distinct dark yellowish brown (10YR 4/4 moist) and dark brown (10YR 3/3 moist) mottles; massive; hard, firm, sticky and plastic; common very fine tubular pores; 45 percent weak discontinuous silica and lime cementation; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (0 to 6 inches thick)

Ck—50 to 60 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; common distinct brown (10YR 4/3 moist) and dark brown (10YR 3/3 moist) mottles; massive; slightly hard, friable, sticky and plastic; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6)

Type location: Elko County, Nevada; about 6 miles southeast of Elko, about 1,000 feet east and 100 feet south of the northwest corner of sec. 3, T. 33 N., R. 56 E.; north latitude of 40 degrees, 46 minutes, 50 seconds; west longitude of 115 degrees, 39 minutes, 27 seconds

Range in Characteristics

Soil moisture: Saturated to a depth of 40 inches for at least 1 month during most years

Soil temperature: 50 to 54 degrees F

Depth to a weakly cemented horizon: 13 to 30 inches

Cementation: More than one horizon with weak cementation in some pedons; 20 to 70 percent durinodes in a friable matrix above horizons with weak cementation in some pedons

Reaction: Strongly alkaline or very strongly alkaline

Salt and sodium: Generally strongly salt and sodium affected between the surface and a depth of 10 inches, except for flood-irrigated areas, which are salt and sodium affected at a depth of more than 10 inches

Segregated lime: Lime concretions generally at a depth of 35 inches but none in some pedons

Mottles: At a depth of more than 12 inches

Control section: Clay content—18 to 35 percent

Other features: In some pedons mainly noncalcareous and mildly alkaline strata or lenses of volcanic ash as much as 4 inches thick, especially at a depth of more than 30 inches

A horizon:
- Hue—10YR to 5Y
- Value—6 to 8 dry, 4 to 7 moist
- Chroma—1 to 4
- Structure—granular or platy

C and Cqk horizons:
- Hue—10YR to 5Y
- Value—6 to 8 dry, 4 to 7 moist
- Chroma—1 to 4
- Texture—mainly silty clay loam or silt loam and thin strata of clay loam, loam, or silty clay in some pedons
- Structure—platy or massive

Orovada Series

The Orovada series consists of very deep, well drained soils that formed in loess that has a high content of volcanic ash and that is underlain by alluvium derived from mixed rock sources. These soils are on fan piedmonts and fan skirts. Slopes are 2 to 15 percent. The mean annual precipitation is about 8 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Coarse-loamy, mixed, mesic Durixerollic Camborthids

Typical pedon: Orovada fine sandy loam, 4 to 15 percent slopes, in an area of the Orovada-Bioya-Haybourne association:

Ap—0 to 7 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; few fine vesicular and common fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear smooth boundary. (0 to 8 inches thick)

Bw—7 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium and coarse and many fine roots; many very fine and few fine continuous tubular pores; 5 percent pebbles; moderately alkaline (pH 8.4); clear smooth boundary. (8 to 20 inches thick)

Bq—15 to 28 inches; very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine to coarse roots; many very fine and few fine continuous tubular pores; 55 percent hard, very friable durinodes 20 to 30 millimeters thick; common fine irregular lime filaments in durinodes and peds; 5 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary. (0 to 12 inches thick)

Bqk1—28 to 41 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 20 percent durinodes 5 to 10 millimeters thick; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary. (5 to 13 inches thick)

Bqk2—41 to 60 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; 25 percent durinodes 5 to 10 millimeters thick; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4)

Type location: Elko County, Nevada; about 6.5 miles southeast of Elko, about 250 feet north and 1,000 feet east of the southwest corner of sec. 10, T. 33 N., R. 56 E.; north latitude of 40 degrees, 45 minutes, 07 seconds; west longitude of 115 degrees, 38 minutes, 57 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through early November, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to the Bq or Bqk horizon: 10 to 28 inches

Control section: Clay content—5 to 18 percent; content of rock fragments—0 to 15 percent, mainly pebbles

A horizon:
- Hue—10YR or 2.5Y
- Value—5 to 7 dry, 3 or 4 moist; where the uppermost 7 inches is mixed, value of more than 5.5 dry and 3.5 moist
- Chroma—2 to 4
- Structure—platy, prismatic, or massive
- Reaction—neutral to moderately alkaline

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 to 6
- Texture—fine sandy loam, very fine sandy loam, loam, or silt loam
- Clay content—5 to 18 percent
- Content of rock fragments—averages 0 to 15 percent pebbles
- Structure—subangular blocky, prismatic, or massive
- Reaction—mildly alkaline or moderately alkaline

Bq and Bqk horizons:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 to 6
- Content of rock fragments—as much as 30 percent pebbles in some parts of the Bq and Bqk horizons in some pedons
- Texture—fine sandy loam, very fine sandy loam, loam, or silt loam
- Structure—subangular blocky or massive
- Consistence—when dry, soft to hard; when moist, very friable or friable
- Reaction—moderately alkaline to very strongly alkaline, becoming more alkaline with increasing depth
- Cementation—20 to 80 percent durinodes
- Other features—gypsum crystals at a depth of more than 37 inches in some pedons; duripan or very gravelly strata at a depth of more than 40 inches in some pedons

Peeko Series

The Peeko series consists of well drained soils that are shallow to a duripan. These soils formed in loess and a component of volcanic ash over alluvium derived from mixed rock sources. The soils are on fan piedmont remnants. Slopes are 2 to 8 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durorthids

Typical pedon: Peeko silt loam, 2 to 8 percent slopes, in an area of the Stampede-Puett-Peeko association:

A1—0 to 1 inch; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; 5 percent pebbles; violently

effervescent; moderately alkaline (pH 7.9); clear wavy boundary. (1 to 5 inches thick)

A2—1 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 4/3) moist; moderate fine and weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few fine roots; common very fine tubular pores; 5 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 6 inches thick)

AB—5 to 8 inches; light gray (10YR 7/2) gravelly silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine and few fine roots; few very fine tubular pores; 20 percent pebbles and 10 percent cobbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (3 to 5 inches thick)

Bqk—8 to 11 inches; very pale brown (10YR 8/3) very gravelly silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, sticky and plastic; common very fine roots; few very fine tubular pores; weak discontinuous silica and lime cementation of matrix with 40 percent weakly cemented durinodes 5 to 10 millimeters thick; 40 percent pebbles; violently effervescent; moderately alkaline (pH 8.3); abrupt smooth boundary. (1 to 5 inches thick)

Bqkm—11 to 36 inches; indurated duripan; silica laminar cap 5 to 8 millimeters thick.

Type location: Elko County, Nevada; about 25 miles northeast of Elko, about 1,600 feet north and 800 feet east of the southwest corner of sec. 22, T. 37 N., R. 58 E.; north latitude of 41 degrees, 04 minutes, 48 seconds; west longitude of 115 degrees, 25 minutes, 40 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to an indurated duripan: 10 to 20 inches

Control section: Clay content—18 to 27 percent; content of rock fragments—averages 15 to 35 percent, mainly pebbles, of which about 80 to 90 percent is duripan fragments

A horizon:
Value—6 or 7 dry, 3 or 4 moist
Chroma—2 or 3
Structure—platy or subangular blocky

AB horizon:
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Structure—subangular blocky or massive

Bqk horizon:
Value—7 or 8 dry, 5 or 6 moist
Chroma—3 or 4
Cementation—10 to 40 percent weakly or strongly cemented durinodes
Texture—very gravelly, gravelly, or very cobbly silt loam
Content of rock fragments—15 to 40 percent pebbles and duripan fragments, of which as much as 30 percent is cobbles

Peevywell Series

The Peevywell series consists of well drained soils that are moderately deep to a duripan. These soils formed in alluvium and colluvium derived from welded tuff. They are on hills. Slopes are 4 to 15 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Typic Durixerolls

Typical pedon: Peevywell gravelly silt loam, 4 to 15 percent slopes, extremely stony, in an area of the Peevywell-Cleavage-Leevan association:

A1—0 to 5 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and plastic; common very fine and fine and few medium roots; many very fine and fine vesicular and tubular pores; 15 percent pebbles; neutral (pH 6.6); clear wavy boundary. (1 to 5 inches thick)

A2—5 to 9 inches; brown (10YR 5/3) gravelly silty clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine and medium roots; many very fine and fine tubular pores; 25 percent pebbles; slightly acid (pH 6.5); abrupt wavy boundary. (4 to 9 inches thick)

Bt1—9 to 16 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, firm, sticky and plastic; common very fine and fine roots; many very fine and fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; neutral (pH 6.6); clear wavy boundary. (3 to 9 inches thick)

Bt2—16 to 28 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong fine and medium angular blocky; extremely hard,

extremely firm, very sticky and very plastic; few very fine and fine exped roots; few fine tubular pores; many prominent slickensides on faces of peds; 5 percent pebbles; neutral (pH 7.2); abrupt wavy boundary. (4 to 17 inches thick)

Bqm—28 to 46 inches; very pale brown (10YR 7/4), indurated duripan, yellowish brown (10YR 5/4) moist; massive; mildly alkaline (pH 7.8); clear wavy boundary. (10 to 19 inches thick)

2C—46 to 60 inches; very pale brown (10YR 7/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; many very fine tubular pores; 45 percent pebbles; strongly effervescent; mildly alkaline (pH 7.6)

Type location: Elko County, Nevada; about 3.5 miles north of Rowland, about 600 feet north and 100 feet west of the southeast corner of sec. 6, T. 47 N., R. 56 E.; north latitude of 41 degrees, 59 minutes, 10 seconds; west longitude of 115 degrees, 41 minutes, 12 seconds

Range in Characteristics

Soil moisture: Usually moist; dry for 50 to 70 consecutive days in summer and fall
Soil temperature: 40 to 44 degrees F
Thickness of the mollic epipedon: 10 to 16 inches
Depth to bedrock: 40 to more than 60 inches
Depth to a duripan: 24 to 35 inches

A horizon:
Value—4 or 5 dry
Chroma—2 or 3
Reaction—slightly acid or neutral

Bt horizon:
Hue—10YR, 7.5YR, or 5YR
Value—5 or 6 dry, 4 or 5 moist
Chroma—3 or 4 dry
Texture—clay loam, clay, or silty clay
Clay content—35 to 55 percent
Content of rock fragments—5 to 15 percent, mainly pebbles
Reaction—slightly acid or neutral

Bqm horizon:
Content of rock fragments—35 to 70 percent
Laminar cap—nearly continuous
Structure—massive or platy
Cementation below caps—weak to strong

2C horizon:
Content of rock fragments—40 to 60 percent
Structure—massive or single grain

Pernog Series

The Pernog series consists of shallow, well drained soils that formed in residuum and colluvium derived from quartzite, shale, chert, welded tuff, and rhyolite. These soils are on mountain crests and side slopes. Slopes are 15 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls.

Typical pedon: Pernog very stony loam, 15 to 50 percent slopes, in an area of the Pernog-Rock outcrop association:

A1—0 to 3 inches; brown (10YR 4/3) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine interstitial pores; 20 percent pebbles, 5 percent cobbles, and 15 percent stones; neutral (pH 6.9); clear smooth boundary. (1 to 4 inches thick)

A2—3 to 10 inches; brown (10YR 4/3) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine interstitial pores; 20 percent pebbles, 5 percent cobbles, and 15 percent stones; neutral (pH 7.0); clear wavy boundary. (4 to 10 inches thick)

Bt—10 to 17 inches; brown (10YR 4/3) very stony clay loam, dark brown (10YR 3/3) moist; moderate fine and medium angular blocky structure; slightly hard, friable, sticky and plastic; many very fine and fine and common medium roots; common very fine and few tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles, 10 percent cobbles, and 20 percent stones; neutral (pH 7.2); clear wavy boundary. (4 to 11 inches thick)

R—17 inches; hard, fractured quartzite; common very fine and fine roots extending into fractures.

Type location: Elko County, Nevada; about 27 miles southeast of Elko, about 1,700 feet north and 300 feet west of the southeast corner of sec. 16, T. 30 N., R. 53 E.; north latitude of 40 degrees, 28 minutes, 49 seconds; west longitude of 116 degrees, 00 minutes, 20 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late July through early October for 45 to 70 consecutive days, moist from winter through early summer

Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 12 to 20 inches, including all parts of the argillic horizon
Depth to bedrock: 12 to 20 inches
Control section: Clay content—averages 20 to 35 percent; content of rock fragments—35 to 50 percent, mainly stones

A horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3 dry or moist
Structure—weak or moderate very fine to medium granular or subangular blocky

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 2 or 3 moist
Texture—very stony loam or very stony clay loam
Clay content—25 to 35 percent
Structure—weak or moderate fine or medium angular or subangular blocky

Pernty Series

The Pernty series consists of shallow, well drained soils that formed in residuum and some colluvium derived from rhyolite, quartzite, sandstone, conglomerate, chert, welded tuff, and andesite. These soils are on the crests of mountains and hills and on side slopes. Slopes are 4 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon: Pernty gravelly loam, 4 to 15 percent slopes, very stony, in an area of the Quarz-Pernty, moderately steep-Pernty association:

A—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very thin and thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium and coarse roots; common very fine and fine vesicular pores; 20 percent pebbles, 1 percent cobbles, and 1 percent stones; neutral (pH 6.8); clear smooth boundary. (2 to 4 inches thick)

Bt1—2 to 7 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and few medium and coarse roots; few very fine tubular pores; few clay films on faces of peds and bridging mineral grains; 20 percent pebbles, 5 percent cobbles, and 3 percent stones; neutral (pH 7.0); clear wavy boundary. (4 to 5 inches thick)

Bt2—7 to 11 inches; brown (10YR 5/3) gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; few very fine and fine tubular pores; few thin clay films on faces of peds and bridging mineral grains; 25 percent pebbles, 5 percent cobbles, and 4 percent stones; neutral (pH 7.0); clear wavy boundary. (0 to 5 inches thick)

Bt3—11 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine to coarse roots; common very fine and fine tubular pores; many thin clay films bridging mineral grains and on faces of peds; 20 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear irregular boundary. (4 to 5 inches thick)

Bt4—15 to 18 inches; yellowish brown (10YR 5/4) very stony clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few very fine to coarse roots; common very fine and fine tubular pores; many thin clay films bridging mineral grains and on faces of peds; 30 percent pebbles, 10 percent cobbles, and 15 percent stones; neutral (pH 7.2). (0 to 3 inches thick)

R—18 inches; highly fractured rhyolite; soil and saprolite extending into fractures; few very fine roots in fractures.

Type location: Elko County, Nevada; about 42 miles northeast of Elko, about 3 miles east of the Bruneau River, about 750 feet south and 1,300 feet east of the northwest corner of sec. 23, T. 42 N., R. 58 E.; north latitude of 41 degrees, 31 minutes, 23 seconds; west longitude of 115 degrees, 23 minutes, 48 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry for 90 to 120 consecutive days, moist in places from late October through early June
Average annual soil temperature: 42 to 47 degrees F
Average summer soil temperature: 59 to 64 degrees F
Thickness of the mollic epipedon: 7 to 10 inches, including the upper part of the Bt horizon

Depth to the base of the Bt horizon: 14 to 20 inches
Depth to lithic contact: 14 to 20 inches
Control section: Clay content—25 to 35 percent when mixed; content of rock fragments—35 to 50 percent when mixed, mainly pebbles and cobbles

A horizon:
Chroma—2 or 3
Structure—weak or moderate granular, subangular blocky, or platy

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—mainly 3 or 4; in places 2 in the upper part
Texture—very gravelly clay loam, very gravelly loam, gravelly loam, very cobbly clay loam, or very stony clay loam
Structure—weak or moderate subangular blocky or massive

Perwick Series

The Perwick series consists of moderately deep, well drained soils that formed in residuum derived from tuff and siltstone. These soils are on hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Xeric Torriorthents

Typical pedon: Perwick gravelly loam, 15 to 50 percent slopes, in an area of the Perwick-Puett-Rad association:

A1—0 to 2 inches; light brownish gray (2.5Y 6/2) gravelly loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and slightly sticky and slightly plastic; many very fine and common fine roots; common very fine interstitial pores; 15 percent pebbles; violently effervescent; moderately alkaline (pH 7.9); abrupt wavy boundary. (1 to 6 inches thick)

A2—2 to 5 inches; light brownish gray (2.5Y 6/2) gravelly loam, dark grayish brown (2.5Y 4/2) moist; moderate thick platy structure; slightly hard, very friable, nonsticky and slightly plastic; common very fine roots; common very fine interstitial pores; 15 percent pebbles; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 3 inches thick)

C1—5 to 16 inches; light brownish gray (2.5Y 6/2) loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, very friable, nonsticky and slightly plastic; few very fine and fine roots; common very fine interstitial and tubular pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.3); clear wavy boundary. (3 to 13 inches thick)

C2—16 to 24 inches; light gray (5Y 7/2) loam, olive (5Y 5/3) moist; massive; hard, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine interstitial pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (8 to 20 inches thick)

Cr—24 inches; pale olive (5Y 6/3), soft siltstone that breaks to silty clay loam, olive (5Y 4/3) moist; few very fine roots; violently effervescent; moderately alkaline (pH 8.0).

Type location: Elko County, Nevada; about 25 miles south of Carlin, about 1,800 feet north and 2,500 feet east of the southwest corner of sec. 23, T. 29 N., R. 52 E.; north latitude of 40 degrees, 22 minutes, 45 seconds; west longitude of 116 degrees, 04 minutes, 31 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in winter and spring
Soil temperature: 48 to 52 degrees F
Depth to paralithic contact: 20 to 40 inches
Reaction: Moderately alkaline to very strongly alkaline
Effervescence: Strongly effervescent or violently effervescent
Control section: Clay content—8 to 15 percent; content of rock fragments—10 to 35 percent, mainly pebbles

A horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 or 3

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4
Texture—sandy loam, fine sandy loam, silt loam, or loam, modified by 10 to 35 percent rock fragments

Porrone Series

The Porrone series consists of very deep, well drained soils that formed in colluvium derived mainly from limestone and a component of loess and volcanic ash. These soils are on the side slopes of hills. Slopes are 15 to 50 percent. The mean annual precipitation is

about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Durixerollic Camborthids

Typical pedon: Porrone very gravelly loam, 30 to 50 percent slopes, in an area of the Izod-Porrone-Chiara association:

A1—0 to 2 inches; grayish brown (10YR 5/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial and fine tubular pores; 40 percent pebbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary. (1 to 4 inches thick)

A2—2 to 6 inches; light brownish gray (10YR 6/2) gravelly silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and few very fine roots; common very fine interstitial pores; 30 percent pebbles; slightly effervescent; mildly alkaline (pH 7.8); clear wavy boundary. (1 to 6 inches thick)

Bw—6 to 18 inches; light brownish gray (10YR 6/2) very gravelly loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine interstitial pores; 35 percent pebbles and 5 percent cobbles; strongly effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (4 to 15 inches thick)

Bqk1—18 to 26 inches; white (10YR 8/2) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine interstitial pores; 50 percent hard durinodes 5 to 10 millimeters thick; thick lime coatings covering rock fragments; 40 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.3); clear wavy boundary. (6 to 40 inches thick)

Bqk2—26 to 65 inches; white (10YR 8/2) very gravelly sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; common very fine interstitial pores; 5 percent durinodes 5 to 10 millimeters thick; thick lime coatings covering rock fragments; 45 percent pebbles and 5 percent cobbles; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; approximately 10 miles southwest of Elko, about 900 feet north and 400 feet west of the southeast corner of sec. 1, T. 32 N., R. 54 E.; north latitude of 40 degrees, 40 minutes, 27 seconds; west longitude of 115 degrees, 50 minutes, 27 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through early November, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to the Bqk horizon: 10 to 20 inches

Control section: Clay content—10 to 18 percent; content of rock fragments—35 to 50 percent, mainly pebbles

Effervescence: Effervescent throughout

A horizon:
- Value—5 to 7 dry, 3 or 4 moist
- Structure—platy or subangular blocky
- Consistence—soft or slightly hard when dry
- Reaction—mildly alkaline or moderately alkaline

Bw horizon:
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 to 4
- Texture—very gravelly loam or very gravelly sandy loam
- Clay content—10 to 20 percent
- Content of rock fragments—35 to 50 percent
- Structure—weak subangular blocky or massive
- Calcium carbonate equivalent—10 to 20 percent
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Value—7 or 8 dry, 5 or 6 moist
- Chroma—2 to 4
- Texture—very gravelly sandy loam or very gravelly loam
- Clay content—10 to 18 percent
- Content of rock fragments—35 to 50 percent, mainly pebbles
- Durinodes—content mainly of 20 to 50 percent, but less than 20 percent in the lower part of the horizon; 5 to 20 millimeters thick; hard or very hard in the upper part of the horizon
- Calcium carbonate equivalent—20 to 40 percent, generally constant throughout
- Reaction—strongly alkaline or very strongly alkaline

Puett Series

The Puett series consists of shallow, well drained soils that formed in residuum derived from weathered tuff, tuffaceous sandstone, and siltstone. These soils

are on hills and in rock-core areas on the side slopes of fan piedmont remnants and partial ballenas. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents

Typical pedon: Puett sandy loam, 15 to 30 percent slopes, in an area of the Zevadez-Puett-Puett, steep association:

A—0 to 2 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; weak very thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine interstitial pores; strongly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (1 to 7 inches thick.)

C1—2 to 7 inches; light gray (10YR 7/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak very fine and fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; 5 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary. (9 to 11 inches thick.)

C2—7 to 11 inches; light gray (10YR 7/2) loam, brown (10YR 4/3) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and fine and common medium roots; many very fine and fine tubular pores; 10 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary. (0 to 4 inches thick)

Cr—11 to 30 inches; light gray (2.5Y 7/2), soft siltstone, brown (10YR 5/3) moist; strong thick platy rock structure; common very fine roots extending into fracture planes; common fine lime filaments on fracture planes; violently effervescent; moderately alkaline (pH 8.2)

Type location: Elko County, Nevada; about 14 miles north of Elko, about 2,600 feet south and 600 feet west of the northeast corner of sec. 23, T. 36 N., R. 56 E.; north latitude of 40 degrees, 59 minutes, 34 seconds; west longitude of 115 degrees, 37 minutes, 21 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to bedrock: 10 to 20 inches

Reaction: Moderately alkaline or strongly alkaline

Carbonates: Strongly effervescent or violently effervescent throughout; lime coatings on pebbles in the lower part of some pedons

Control section: Clay content—averages 5 to 10 percent; content of rock fragments—as much as 35 percent pebbles

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Structure—weak or moderate thin to thick platy or massive

C horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 to 4
- Texture of the fine earth—stratified loamy fine sand to loam, dominantly coarse sandy loam to loam; gravelly loam or gravelly sandy loam common in some pedons
- Structure—subangular blocky or massive

Quarz Series

The Quarz series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from sandstone, shale, chert, conglomerate, quartzite, welded tuff, andesite, or rhyolite. These soils are on the side slopes of hills and mountains. Slopes are 4 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Aridic Argixerolls

Typical pedon: Quarz very stony loam, 30 to 50 percent slopes, in an area of the Quarz-Cleavage-Tusel association:

A—0 to 4 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; weak thin and medium platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; many very fine and fine vesicular and few fine tubular pores; 25 percent pebbles, 5 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear wavy boundary. (4 to 16 inches thick)

Bt1—4 to 12 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky

and slightly plastic; many very fine and common fine to coarse roots; many very fine and fine tubular pores; common thin clay films on faces of peds and lining pores; 30 percent pebbles, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); abrupt wavy boundary. (4 to 10 inches thick)

Bt2—12 to 26 inches; pale brown (10YR 6/3) very gravelly clay, brown (10YR 4/3) moist; moderate fine and medium angular blocky structure; hard, firm, sticky and plastic; few very fine roots between peds; common very fine and few fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 30 percent pebbles and 5 percent cobbles; neutral (pH 7.0); abrupt irregular boundary. (6 to 15 inches thick)

R—26 inches; fractured andesite.

Type location: Elko County, Nevada; about 25 miles southwest of Elko, about 200 feet south and 1,000 feet west of the northeast corner of sec. 3, T. 30 N., R. 53 E.; north latitude of 40 degrees, 31 minutes, 15 seconds; west longitude of 115 degrees, 59 minutes, 15 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-July through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Depth to bedrock: 20 to 40 inches

Thickness of the mollic epipedon: 7 to 16 inches, including the upper part of the argillic horizon in some pedons

Reaction: Neutral or mildly alkaline

Control section: Clay content—averages 35 to 55 percent; content of rock fragments—35 to 60 percent, mainly pebbles and as much as 15 percent cobbles or stones

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—platy, granular, or weak subangular blocky

Bt horizon:
- Hue—5YR, 7.5YR, or 10YR
- Value—4 to 6 dry, 3 or 4 moist
- Chroma—3 to 5
- Texture—dominantly very gravelly clay loam or very gravelly clay, but very cobbly clay loam in some parts of the horizon
- Structure—subangular or angular blocky or prismatic

Rad Series

The Rad series consists of very deep, well drained soils that formed in loess over loamy alluvium derived from mixed rock sources. These soils are on fan piedmont remnants, on inset fans, and in narrow drainageways on hills. Slopes are 2 to 15 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Coarse-silty, mixed, mesic Durixerollic Camborthids

Typical pedon: Rad silt loam, 2 to 4 percent slopes, in an area of the Enko-Rad association:

A1—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine to medium roots; many very fine vesicular pores; strongly effervescent; mildly alkaline (pH 7.8); abrupt smooth boundary. (3 to 5 inches thick)

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine to medium roots; many very fine tubular pores; mildly alkaline (pH 7.8); clear smooth boundary. (3 to 5 inches thick)

Bw—7 to 12 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common medium roots; many very fine and few fine tubular pores; mildly alkaline (pH 7.8); clear smooth boundary. (5 to 18 inches thick)

Bq—12 to 26 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, brittle, nonsticky and nonplastic; many very fine and fine roots decreasing to common very fine and fine roots in the lower part; common very fine interstitial pores; 20 percent hard durinodes 15 to 25 millimeters thick; strongly effervescent; moderately alkaline (pH 7.8); gradual smooth boundary. (8 to 15 inches thick)

Bqk1—26 to 34 inches; very pale brown (10YR 7/3) very fine sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, brittle, nonsticky and nonplastic; few very fine roots; common very fine interstitial pores; few fine irregularly shaped lime filaments; 20 percent hard durinodes 15 to 25 millimeters thick; strongly effervescent; strongly alkaline (pH 8.5); clear smooth boundary. (0 to 8 inches thick)

Bqk2—34 to 45 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; hard,

brittle, nonsticky and nonplastic; few very fine and medium roots; common very fine interstitial pores; 40 percent hard durinodes 15 to 30 millimeters thick; weak silica and lime cementation; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (5 to 10 inches thick)

Bqk3—45 to 56 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, brittle, nonsticky and nonplastic; few very fine and medium roots; common very fine interstitial pores; 20 percent hard durinodes 15 to 25 millimeters thick; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (0 to 11 inches thick)

Bqk4—56 to 62 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; 10 to 15 percent weak durinodes 25 millimeters thick; few fine irregularly shaped lime filaments; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 28 miles south of Elko, about 50 feet south and 2,500 feet east of the northwest corner of sec. 36, T. 30 N., R. 55 E.; north latitude of 40 degrees, 26 minutes, 45 seconds; west longitude of 115 degrees, 43 minutes, 44 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in winter and spring

Soil temperature: 47 to 53 degrees F

Combined thickness of the A and Bw horizons and depth to carbonates: 12 to 20 inches

Depth to weak continuous silica cementation: 30 to 38 inches

Control section: Clay content—5 to 10 percent; sand fraction—averages less than 15 percent fine sand or coarser sand

A horizon:
- Hue—10YR or 2.5Y
- Value—6 or 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate platy or subangular blocky or massive
- Reaction—neutral or mildly alkaline

Bw horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 or 3
- Texture—mainly very fine sandy loam or silt loam; thin strata of loam, clay loam, fine sandy loam, or sandy loam in some pedons
- Structure—medium or thick platy, prismatic parting to platy, fine or medium subangular blocky, or massive
- Reaction—mildly alkaline to strongly alkaline

Bq horizon:
- Hue—10YR or 2.5Y
- Value—6 to 8 dry, 4 or 5 moist
- Chroma—2 to 4
- Texture—mainly very fine sandy loam or silt loam; thin strata of loam, clay loam, fine sandy loam, or sandy loam in some pedons
- Structure—massive or weak or moderate thin to thick platy
- Consistence—slightly hard or hard when dry; friable to very firm or brittle when moist
- Reaction—moderately alkaline to very strongly alkaline
- Effervescence—slightly effervescent to violently effervescent
- Other features—10 to 50 percent durinodes; weak silica and lime cementation in some parts of the horizon

Roca Series

The Roca series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from shale, conglomerate, andesite, welded tuff, rhyolite, quartzite, and sandstone. These soils are on the side slopes of hills and mountains. Slopes are 4 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids

Typical pedon: Roca very gravelly loam, 15 to 30 percent slopes, in an area of the Linkup-Roca-Vanwyper association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; weak thin and medium platy structure; slightly hard, friable, sticky and plastic; many very fine roots; many very fine and fine interstitial pores; 50 percent pebbles and 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary. (3 to 4 inches thick)

A2—3 to 5 inches; light brownish gray (10YR 6/2) very gravelly loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; many very fine interstitial pores; 40 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.4);

clear wavy boundary. (0 to 6 inches thick)
Bt1—5 to 7 inches; light brownish gray (10YR 6/2) very gravelly clay loam, dark brown (10YR 3/3) moist; weak very fine and fine subangular blocky structure; hard, very friable, sticky and plastic; common very fine and fine roots; common very fine tubular pores; many thin clay films on faces of peds and lining pores; 40 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 5 inches thick)
Bt2—7 to 14 inches; light yellowish brown (10YR 6/4) very gravelly clay, yellowish brown (10YR 5/4) moist; moderate fine and medium angular blocky structure; very hard, very friable, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; many thin and moderately thick clay films on faces of peds, lining pores, and on pebbles; 45 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (6 to 10 inches thick)
Bt3—14 to 21 inches; light yellowish brown (10YR 6/4) very gravelly clay, yellowish brown (10YR 5/4) moist; moderate fine to coarse angular blocky structure; very hard, friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; many thin and moderately thick clay films on faces of peds, lining pores, and on pebbles; 45 percent pebbles and 5 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 7 inches thick)
Btk—21 to 29 inches; pale yellow (2.5Y 8/4) very gravelly clay loam, light yellowish brown (2.5Y 6/4) moist; moderate very fine to medium angular blocky structure; very hard, friable, very sticky and very plastic; few very fine roots; common very fine tubular pores; many thin clay films on faces of peds and lining pores; 45 percent pebbles and 5 percent cobbles; common fine lime filaments; violently effervescent; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 8 inches thick)
R—29 inches; fractured sandstone.

Type location: Elko County, Nevada; about 22 miles north of Elko, about 1,600 feet east and 1,850 feet north of the southwest corner of sec. 29, T. 37 N., R. 56 E.; north latitude of 41 degrees, 03 minutes, 52 seconds; west longitude of 115 degrees, 41 minutes, 34 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through early November, moist in places in winter and spring
Soil temperature: 43 to 47 degrees F
Depth to bedrock: 20 to 40 inches

A horizon:
Hue—10YR or 2.5Y
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—granular or platy
Reaction—slightly acid or mildly alkaline

Bt horizon:
Hue—mainly 10YR or 7.5YR; 2.5Y in the lower part of the horizon in some pedons
Value—5 to 7 dry, 3 to 7 moist
Chroma—3 to 6
Texture—very gravelly clay or very gravelly clay loam
Clay content—35 to 50 percent
Content of rock fragments—35 to 50 percent, mainly pebbles
Structure—moderate or strong medium or fine angular or subangular blocky
Reaction—neutral to moderately alkaline, generally becoming more alkaline with increasing depth
Other features—secondary carbonates and violent effervescence in the lower part of the horizon in some pedons

Samor Series

The Samor series consists of shallow, well drained soils that formed in residuum and colluvium derived from limestone. These soils are on hills and mountains. Slopes are 15 to 75 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 45 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Calciorthids

Typical pedon: Samor very gravelly loam, 15 to 50 percent slopes, in an area of the Samor-Sumine-Eboda association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; 40 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (2 to 4 inches thick)
A2—3 to 6 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common fine tubular pores; 30 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary. (2 to 5 inches thick)

Bk—6 to 19 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine and common medium roots; common fine tubular pores; many medium lime pendants on the underside of rock fragments; 20 percent pebbles, 15 percent cobbles, and 10 percent stones; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary. (6 to 15 inches thick)

R—19 inches; unweathered limestone; discontinuous, very fractured lime pan, ¼ to 1 inch thick, on bedrock surface.

Type location: Elko County, Nevada; about 10 miles west of Elko, about 1,200 feet north and 2,200 feet east of the southwest corner of sec. 25, T. 34 N., R. 53 E.; north latitude of 40 degrees, 48 minutes, 03 seconds; west longitude of 115 degrees, 57 minutes, 39 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to bedrock: 14 to 20 inches

Depth to the Bk horizon: 4 to 9 inches

Calcium carbonate equivalent: 15 to 25 percent

Control section: Clay content—18 to 27 percent; content of rock fragments—35 to 60 percent, mainly pebbles and cobbles

A horizon:
- Value—5 to 7 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak or moderate thin to thick platy or weak fine granular

Bk horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—very gravelly or very cobbly loam
- Structure—weak fine or medium subangular blocky, moderate fine to coarse subangular blocky, or massive

Shalcleav Series

The Shalcleav series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium weathered from welded tuff and rhyolite. These soils are on the crests and side slopes of hills. Slopes are 4 to 15 percent. The mean annual precipitation is about 16 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls.

Typical pedon: Shalcleav extremely channery silt loam, 4 to 15 percent slopes, in an area of the Shalcleav-Tweener association:

A—0 to 3 inches; grayish brown (10YR 5/2) extremely channery silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine tubular pores; 55 percent channers and 5 percent flagstones; neutral (pH 7.2); clear smooth boundary. (1 to 5 inches thick)

Bt1—3 to 5 inches; brown (10YR 5/3) very channery clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine and medium roots; many very fine tubular pores; many thin clay films on faces of peds, lining pores, and coating mineral grains; 35 percent channers and 15 percent flagstones; neutral (pH 7.2); clear smooth boundary. (1 to 6 inches thick)

Bt2—5 to 10 inches; brown (10YR 4/3) extremely flaggy clay, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine and medium roots; common very fine tubular pores; common moderately thick clay films on faces of peds and coating and bridging mineral grains; 20 percent channers and 60 percent flagstones; neutral (pH 7.2); abrupt smooth boundary. (2 to 6 inches thick)

R—10 inches; highly fractured plates of welded tuff; few or common roots along fractures.

Type location: Elko County, Nevada; about 28 miles southwest of Jackpot and 1 mile east of the Humboldt National Forest, about 2,000 feet east and 2,000 feet north of the southwest corner of sec. 23, T. 45 N., R. 60 E.; north latitude of 41 degrees, 48 minutes, 30 seconds; west longitude of 115 degrees, 9 minutes, 38 seconds

Range in Characteristics

Soil moisture: Usually moist, but dry for 70 to 100 consecutive days from July through October

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 4 to 12 inches, including all or part of the Bt horizon

Depth to bedrock: 4 to 12 inches

Control section: Clay content—28 to 35 percent; content

of rock fragments—60 to 75 percent, mainly channers and flagstones

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—platy, granular, or subangular blocky

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—very channery silt loam or channery clay loam in the upper part and extremely channery clay loam, extremely channery clay, or extremely flaggy clay in the lower part
Clay content—30 to 40 percent
Content of rock fragments—40 to 60 percent in the upper part and 60 to 85 percent in the lower part, mainly channers and flagstones
Structure—subangular or angular blocky

Shayla Series

The Shayla series consists of very shallow and shallow, well drained soils that formed in residuum derived from tuff, siltstone, or welded tuff. These soils are in the rock-core areas of hills and the side slopes of fan piedmont remnants. Slopes are 30 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed (calcareous), mesic, shallow Typic Torriorthents

Typical pedon: Shayla very gravelly silty clay loam, 30 to 50 percent slopes, in an area of the Shayla-Dewar-Vanwyper association:

A1—0 to 2 inches; light gray (2.5Y 7/2) very gravelly silty clay loam, light brownish gray (2.5Y 6/2) moist; moderate fine and medium subangular blocky structure parting to strong very fine granular; soft, very friable, sticky and plastic; few very fine roots; many very fine interstitial pores; 40 percent pebbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (1 to 4 inches thick)

A2—2 to 5 inches; light gray (2.5Y 7/2) gravelly silty clay loam, light yellowish brown (2.5Y 6/4) moist; weak fine and medium subangular blocky structure; soft, friable, sticky and plastic; many very fine and few fine roots; common very fine tubular and few very fine interstitial pores; violently effervescent; 15 percent pebbles; moderately alkaline (pH 8.2); clear smooth boundary. (2 to 4 inches thick)

C1—5 to 8 inches; pale yellow (2.5Y 8/4) very gravelly silty clay loam, light yellowish brown (2.5Y 6/4) moist; moderate fine and medium angular blocky structure; soft, friable, sticky and plastic; many very fine and fine and common medium roots; few very fine tubular and interstitial pores; violently effervescent; 50 percent pebbles; moderately alkaline (pH 8.2); abrupt smooth boundary. (3 to 7 inches thick)

C2—8 to 13 inches; light gray (2.5Y 7/2) very gravelly silt loam, light brownish gray (2.5Y 6/2) moist; strong very fine and fine angular blocky structure; slightly hard, friable, sticky and plastic; common very fine and few fine and medium roots along ped surfaces; violently effervescent; 55 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary. (2 to 7 inches thick)

Cr—13 to 25 inches; white (2.5Y 8/2), weathered, calcareous tuff; few very fine to medium roots along fracture planes; common fine and medium prominent reddish brown (5YR 4/4) and dark reddish brown (5YR 3/3) relict mottles.

Type location: Elko County, Nevada; about 21 miles north of Elko, about 700 feet west and 1,700 feet south of the northeast corner of sec. 3, T. 37 N., R. 56 E.; north latitude of 41 degrees, 07 minutes, 38 seconds; west longitude of 115 degrees, 38 minutes, 37 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late May through early November, moist in places in winter and spring
Soil temperature: 47 to 52 degrees F
Depth to paralithic contact: 8 to 15 inches
Effervescence: Strongly effervescent or violently effervescent
Reaction: Moderately alkaline or strongly alkaline
Control section: Clay content—23 to 35 percent; content of rock fragments—35 to 60 percent, mainly pebbles

A1 horizon:
Hue—10YR or 2.5Y
Value—6 or 7 dry, 5 or 6 moist
Chroma—2 to 4
Structure—platy, subangular blocky, or granular

C horizon:
Hue—10YR or 2.5Y
Value—7 or 8 dry
Texture—very gravelly silty clay or very gravelly silt loam
Content of rock fragments—45 to 60 percent, mainly pebbles

Shively Series

The Shively series consists of deep and very deep, well drained soils that formed in colluvium and residuum derived primarily from tuffaceous sandstone, rhyolite, and welded tuff. These soils are on partial ballenas and the concave north-facing slopes of mountains and hillsides. Slopes are 30 to 50 percent. The mean annual precipitation is about 16 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Coarse-loamy, mixed, frigid Pachic Haploxerolls

Typical pedon: Shively loam, 30 to 50 percent slopes, in an area of the Cotant-McIvey-Shively association:

A1—0 to 8 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine to medium roots; many very fine interstitial pores; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 10 inches thick)

A2—8 to 16 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine to medium roots; many very fine interstitial pores; mildly alkaline (pH 7.6); clear wavy boundary. (5 to 10 inches thick)

A3—16 to 24 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine to medium roots; many very fine interstitial pores; mildly alkaline (pH 7.6); clear wavy boundary. (5 to 12 inches thick)

AC—24 to 31 inches; grayish brown (10YR 5/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine to medium roots; many very fine interstitial pores; 10 percent pebbles; mildly alkaline (pH 7.6); gradual wavy boundary. (0 to 10 inches thick)

C—31 to 46 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine to medium roots; many very fine interstitial pores; mildly alkaline (pH 7.6); abrupt wavy boundary. (10 to 25 inches thick)

2Cr—46 to 56 inches; light gray (10YR 7/1), weathered tuffaceous sandstone that crushes to very fine sand, dark gray (10YR 4/1) moist; massive; hard, firm, nonsticky and nonplastic; mildly alkaline (pH 7.8).

Type location: Elko County, Nevada; about 6 miles southeast of the Wildhorse Reservoir, about 1,000 feet east and 2,100 feet south of the northwest corner of sec. 13, T. 42 N., R. 55 E.; north latitude of 41 degrees, 32 minutes, 13 seconds; west longitude of 115 degrees, 43 minutes, 48 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late July through early October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 20 to 35 inches

Depth to paralithic contact: Mainly 40 to 60 inches but 60 to 80 inches in some pedons in colluvial areas

Control section: Texture—loam or fine sandy loam in the upper part and fine sandy loam, sandy loam, or sandy clay loam in the lower part; clay content—10 to 18 percent; content of rock fragments—0 to 30 percent, mainly pebbles, in any one horizon but averages 0 to 15 percent

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—granular or subangular blocky

C horizon:
Value—5 or 6 dry, 4 or 5 moist
Chroma—1 to 4
Structure—subangular blocky or massive

Cr horizon:
Hue, value, and chroma—reflecting the colors of the parent material

Shivlum Series

The Shivlum series consists of very deep, well drained soils that formed in colluvium and alluvium derived dominantly from shale, sandstone, chert, conglomerate, and welded tuff and a component of loess. These soils are on mountains, hills, fan piedmont remnants, and partial ballenas. Slopes are 4 to 30 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine-silty, mixed, frigid Aridic Argixerolls

Typical pedon: Shivlum silt loam, 15 to 30 percent slopes, in an area of the Pernty-Shivlum association:

A1—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and

slightly plastic; many very fine roots; many very fine interstitial pores; neutral (pH 7.0); clear smooth boundary. (2 to 5 inches thick)

A2—4 to 9 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, sticky and plastic; many very fine and common fine roots; common fine tubular and common very fine interstitial pores; mildly alkaline (pH 7.4); clear wavy boundary. (3 to 7 inches thick)

Bt1—9 to 15 inches; brown (10YR 5/3) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common fine tubular and very fine interstitial pores; few thin clay films on faces of peds and common thin clay films lining pores; neutral (pH 7.2); clear wavy boundary. (4 to 10 inches thick)

Bt2—15 to 34 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure; hard, friable, sticky and plastic; common very fine and few fine roots; many very fine interstitial and few fine tubular pores; common moderately thick clay films on faces of peds and lining pores; neutral (pH 7.2); clear wavy boundary. (12 to 26 inches thick)

2Bt3—34 to 60 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure; hard, friable, very sticky and very plastic; common very fine and few fine roots; many very fine and few fine interstitial pores; common moderately thick clay films on faces of peds and lining pores; neutral (pH 7.2).

Type location: Elko County, Nevada; about 10 miles west of Elko, about 1,900 feet east and 1,800 feet north of the southwest corner of sec. 19, T. 34 N., R. 54 E.; north latitude of 40 degrees, 49, minutes, 00 seconds; west longitude of 115 degrees, 56 minutes, 32 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 45 to 47 degrees F

Thickness of the mollic epipedon: 10 to 17 inches, including the upper part of the argillic horizon

Depth to the 2Bt horizon: 24 to 40 inches

Combined thickness of the A, Bt, and 2Bt horizons: 60 to 80 inches

Reaction: Neutral or mildly alkaline

Control section: Clay content—25 to 35 percent

A horizon:
- Value—4 or 5 dry, 2 or 3 moist
- Chroma—2 or 3
- Structure—granular, platy, or subangular blocky

Bt horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 to 4 dry or moist
- Structure—prismatic or angular or subangular blocky
- Texture—silt loam or silty clay loam in the upper part

Short Creek Series

The Short Creek series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and in some areas in colluvium derived from rhyolite or welded tuff. These soils are on fan piedmont remnants and hills. Slopes are 15 to 75 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids

Typical pedon: Short Creek very cobbly loam, 30 to 50 percent slopes, in an area of the Donna-Short Creek-Kleckner association:

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; soft, very friable, nonsticky and nonplastic; common fine roots; many fine interstitial pores; 20 percent pebbles and 35 percent cobbles; neutral (pH 6.8); abrupt smooth boundary. (1 to 9 inches thick)

Bt1—3 to 10 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; hard, very friable, slightly sticky and slightly plastic; common fine roots; common fine or medium interstitial pores; common moderately thick clay films on faces of peds and lining pores; 35 percent pebbles and 15 percent cobbles; neutral (pH 7.0); clear smooth boundary. (3 to 10 inches thick)

Bt2—10 to 24 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and very plastic; common fine to coarse roots; few fine or medium interstitial pores; common moderately thick clay films lining pores and on faces of peds; 35 percent pebbles and 15 percent cobbles; neutral

(pH 7.0); clear smooth boundary. (5 to 14 inches thick)

Bt3—24 to 45 inches; light yellowish brown (10YR 6/4) very gravelly clay, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure; very hard, firm, very sticky and very plastic; common fine and medium roots; common fine and medium interstitial pores; common moderately thick clay films lining pores and on faces of peds; 35 percent pebbles and 15 percent cobbles; neutral (pH 7.2); clear smooth boundary. (6 to 21 inches thick)

Btk—45 to 64 inches; very pale brown (10YR 7/3) extremely gravelly sandy clay, yellowish brown (10YR 5/6) moist; moderate fine or medium subangular blocky structure; very hard, firm, sticky and very plastic; few thin clay films lining pores; 40 percent pebbles and 20 percent cobbles; slightly effervescent; moderately alkaline (pH 8.2).

Type location: Elko County, Nevada; about 30 miles north of Elko, about 2,000 feet north and 900 feet west of the southeast corner of sec. 24, T. 40 N., R. 55 E.; north latitude of 41 degrees, 20 minutes, 40 seconds; west longitude of 115 degrees, 43 minutes, 09 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 45 to 47 degrees F

Depth to lime: 30 to 54 inches

Depth to the base of the argillic horizon: 30 to 60 inches

Reaction: Neutral to strongly alkaline, becoming more alkaline with increasing depth

Control section: Clay content—40 to 50 percent; content of rock fragments—averages 35 to 50 percent, mainly pebbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—2 or 3
- Structure—weak to strong very fine to medium granular, medium to thick platy, or massive
- Other features—where dry value is 5, the thickness is less than one-third of the solum thickness

Upper part of the Bt horizon:
- Value—4 to 6 dry or moist
- Chroma—2 to 4
- Clay content—40 to 50 percent
- Content of rock fragments—averages 35 to 60 percent, mainly pebbles
- Structure—weak or moderate fine to coarse prismatic or moderate or strong subangular blocky
- Consistence—hard or very hard when dry
- Reaction—neutral to moderately alkaline
- Other features—abrupt or clear upper boundary; if the boundary is abrupt, the clay increase between the A and Bt horizons is less than 15 percent

Lower part of the Bt horizon:
- Texture—sandy clay loam, clay loam, or sandy clay
- Clay content—30 to 40 percent
- Content of rock fragments—60 to 70 percent, mainly pebbles
- Reaction—moderately alkaline or strongly alkaline

Siri Series

The Siri series consists of deep, well drained soils that formed in residuum and colluvium derived from limestone and a component of loess. These soils are on mountains and hills. Slopes are 30 to 50 percent. The mean annual precipitation is about 13 inches, and the mean annual temperature is about 45 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Xerollic Calciorthids

Typical pedon: Siri very gravelly loam, 30 to 50 percent slopes, in an area of the Samor-Siri-Nirac association:

A1—0 to 2 inches; pale brown (10YR 6/3) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure parting to strong very thin platy; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; common very fine interstitial pores; 65 percent pebbles; violently effervescent; mildly alkaline (pH 7.4); clear smooth boundary. (2 to 3 inches thick)

A2—2 to 6 inches; pale brown (10YR 6/3) very gravelly silt loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; common fine tubular pores; 55 percent pebbles; violently effervescent; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 4 inches thick)

Bw—6 to 11 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; thick lime coatings on the underside of pebbles; 40 percent pebbles; violently effervescent; mildly alkaline (pH 7.8); clear wavy boundary. (4 to 9 inches thick)

Bqk1—11 to 33 inches; very pale brown (10YR 7/3) extremely gravelly loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; common fine and few coarse roots; common fine tubular pores; lime and silica pendants on the underside of pebbles; 70 percent pebbles; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (10 to 22 inches thick)

Bqk2—33 to 57 inches; very pale brown (10YR 7/3) extremely gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; common fine and few coarse roots; common fine tubular pores; lime and silica pendants on the underside of pebbles; 70 percent pebbles and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary. (0 to 24 inches thick)

R—57 inches; limestone bedrock.

Type location: Elko County, Nevada; about 12 miles southwest of Elko, about 2,000 feet east and 1,000 feet north of the southwest corner of sec. 33, T. 33 N., R. 54 E.; north latitude of 40 degrees, 41 minutes, 47 seconds; west longitude of 115 degrees, 54 minutes, 10 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 44 to 47 degrees F

Combined thickness of the A and Bw horizons: 10 to 16 inches

Reaction: Mildly alkaline to strongly alkaline, becoming more alkaline with increasing depth

Depth to bedrock: 40 to 60 inches

Control section: Clay content—18 to 25 percent; content of rock fragments—35 to 80 percent angular pebbles and cobbles

A horizon:
- Chroma—2 or 3
- Structure—platy, granular, or massive
- Effervescence—mainly slightly effervescent to violently effervescent; noneffervescent in the upper 1 to 6 inches in some pedons

Bw horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—2 or 3
- Texture—extremely gravelly or very gravelly sandy loam or loam
- Content of rock fragments—35 to 80 percent angular pebbles and cobbles
- Structure—weak or moderate medium subangular blocky or massive
- Effervescence—slightly effervescent or moderately effervescent

Bqk horizon:
- Value—6 to 8 dry, 4 to 6 moist
- Chroma—2 or 3
- Consistence—slightly hard or hard when dry
- Texture—extremely gravelly or very gravelly sandy loam or loam
- Effervescence—slightly effervescent to violently effervescent
- Other features—thickness of 12 to 46 inches; thin lime silica pendants on the underside of pebbles and cobbles; bedrock substratum phases

Siri Variant

The Siri Variant consists of moderately deep, well drained soils that formed in residuum derived from limestone. These soils are on plateaus. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, carbonatic, frigid Xerollic Calciorthids

Typical pedon: Siri Variant gravelly loam, 15 to 50 percent slopes, in an area of the Siri Variant-Sumine-Vitale Variant association:

A1—0 to 4 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium and many fine and very fine roots; few medium and common fine and very fine tubular pores; 15 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary. (2 to 5 inches thick)

A2—4 to 9 inches; pale brown (10YR 6/3) gravelly loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few medium, common fine, and many very fine roots; few medium, common fine, and many very fine tubular pores; 25 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (4 to 7 inches thick)

Bk1—9 to 16 inches; very pale brown (10YR 7/4) very gravelly fine sandy loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few medium and common fine and very

fine roots; few fine and many very fine tubular pores; 52 percent calcium carbonate equivalent; 35 percent pebbles with thin lime coatings on all sides; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (5 to 11 inches thick)

Bk2—16 to 26 inches; very pale brown (10YR 8/4) very gravelly fine sandy loam, very pale brown (10YR 7/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; few fine and common very fine tubular pores; 51 percent calcium carbonate equivalent; 45 percent pebbles with thin lime coatings on all sides; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (8 to 17 inches thick)

Cr—26 to 30 inches; weathered limestone. (0 to 5 inches thick)

R—30 inches; limestone.

Type location: Elko County, Nevada; about 2 miles east of Rowland, about 2,600 feet east and 900 feet south of the northwest corner of sec. 27, T. 47 N., R. 56 E.; north latitude of 41 degrees, 56 minutes, 14 seconds; west longitude of 115 degrees, 38 minutes, 13 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring

Soil temperature: 43 to 45 degrees F

Depth to lithic contact: 26 to 40 inches; in some pedons no paralithic contact above the lithic contact

Control section: Clay content—8 to 18 percent; content of rock fragments—35 to 50 percent, mainly pebbles; calcium carbonate equivalent (in the fraction less than 20 millimeters in size)—more than 40 percent by weight

Cr horizon:

Value—7 or 8 dry, 6 or 7 moist

Sonoma Series

The Sonoma series consists of very deep, poorly drained soils that formed in silty alluvium derived from mixed rock sources and a component of volcanic ash. These soils are on basin floors. Slopes are 0 to 2 percent. The mean annual precipitation is about 7 inches, and the mean annual temperature is about 50 degrees F.

Taxonomic class: Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents

Typical pedon: Sonoma silty clay loam, occasionally flooded, 0 to 2 percent slopes, in an area of the Sonoma, frequently flooded-Devilsgait-Sonoma association.

A1—0 to 4 inches; light gray (10YR 7/2) silty clay loam, grayish brown (10YR 5/2) moist; moderate fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (2 to 10 inches thick)

A2—4 to 11 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; weak very thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine and few medium roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (3 to 12 inches thick)

C1—11 to 24 inches; white (10YR 8/1) silt loam, grayish brown (10YR 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine, common very fine, and few medium roots; common very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (5 to 14 inches thick)

C2—24 to 39 inches; white (10YR 8/1) silty clay loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, slightly sticky and plastic; many fine roots; common very fine tubular and irregular pores; strongly effervescent; moderately alkaline (pH 8.3); clear smooth boundary. (8 to 35 inches thick)

C3—39 to 62 inches; white (10YR 8/1) silt loam, gray (10YR 5/1) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular and irregular pores; strongly effervescent; moderately alkaline (pH 8.3).

Type location: Elko County, Nevada; about 2.5 miles west of Jiggs, about 100 feet north and 1,900 feet east of the southwest corner of sec. 31, T. 30 N., R. 56 E.; north latitude of 40 degrees, 25 minutes, 56 seconds; west longitude of 115 degrees, 42 minutes, 38 seconds

Range in Characteristics

Soil moisture: Saturated during spring and early summer; in undrained areas, a water table at a depth of more than 40 inches during the remainder of the year

Soil temperature: 49 to 53 degrees F

Depth to a buried A horizon: Mainly 30 to 55 inches; no buried A horizon in some pedons

Carbonates: Calcium carbonate equivalent of 3 to 12

percent throughout; strongly effervescent or violently effervescent

Control section: Clay content—25 to 35 percent; texture—clay or silty clay in some pedons

Other features: Freshwater crustacean shells and lime concretions ¼ to ½ inch in diameter in most pedons

A horizon:
Hue—2.5Y or 10YR
Value—3 to 5 moist
Reaction—moderately alkaline to very strongly alkaline; moderately alkaline or strongly alkaline in the buried A horizon

C horizon:
Hue—10YR to 5Y
Value—6 to 8 dry, 3 to 5 moist
Chroma—mainly 1 or 2; 3 in parts of the horizon in some pedons
Texture—stratified silt loam to silty clay loam
Structure—platy, subangular blocky, or massive
Reaction—moderately alkaline to very strongly alkaline

Sonoma Variant

The Sonoma Variant consists of very deep, poorly drained soils that formed in alluvium derived from mixed rock sources. These soils are on flood plains along streams. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Coarse-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Aeric Fluvaquents

Typical pedon: Sonoma Variant silt loam, in an area of the Sonoma Variant-Halleck association:

A—0 to 2 inches; light gray (10YR 7/2) silt loam, brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine vesicular pores; 5 percent pebbles; violently effervescent; very strongly alkaline (pH 9.2); abrupt smooth boundary. (1 to 3 inches thick)

C1—2 to 12 inches; very pale brown (10YR 7/3) loam, dark grayish brown (10YR 4/2) moist; common distinct mottles, light brown (7.5YR 6/4) dry; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary. (8 to 12 inches thick)

C2—12 to 17 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary. (3 to 6 inches thick)

C3—17 to 29 inches; light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (10 to 14 inches thick)

2Cqk—29 to 40 inches; white (10YR 8/1) extremely gravelly coarse sand, light brownish gray (10YR 6/2) moist; massive; hard, firm, nonsticky and nonplastic; many very fine tubular pores; 65 percent pebbles; weak continuous silica cementation; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary. (9 to 13 inches thick)

2C—40 to 61 inches; white (10YR 8/1) extremely gravelly sand, light gray (10YR 7/2) moist; single grain; loose, nonsticky and nonplastic; 65 percent pebbles; violently effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 13 miles northeast of Deeth, about 2,400 feet east and 100 feet north of the southwest corner of sec. 34, T. 39 N., R. 60 E.; north latitude of 41 degrees, 13 minutes, 00 seconds; west longitude of 115 degrees, 11 minutes, 10 seconds

Range in Characteristics

Soil moisture: A seasonal high water table at a depth of 25 to 36 inches for at least 1 month during the year

Soil temperature: 47 to 50 degrees F

Depth to the 2Cqk horizon: 25 to 35 inches

Control section: Clay content—10 to 18 percent in the upper part and 0 to 5 percent in the lower part; texture—loam, sandy loam, or silt loam in the upper part and very gravelly or extremely gravelly sand, coarse sand, or loamy sand in the lower part; content of rock fragments—averages 50 to 75 percent, mainly pebbles, in the lower part

A horizon:
Value—6 or 7 dry, 4 or 5 moist

C horizon:
Hue—10YR or 7.5YR
Value—6 or 7 dry, 4 to 6 moist
Chroma—2 or 3
Structure—subangular blocky or massive
Reaction—moderately alkaline or strongly alkaline

2C horizon:
Value—7 or 8 dry or moist
Chroma—1 or 2

Soughe Series

The Soughe series consists of shallow, well drained soils that formed in residuum and colluvium derived from shale, conglomerate, welded tuff, quartzite, and altered andesite. These soils are on hills and in rock-core areas of the side slopes of fan piedmont remnants. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids

Typical pedon: Soughe very cobbly loam, 30 to 50 percent slopes, in an area of the Soughe, eroded-Soughe association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine vesicular and few very fine tubular pores; 30 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.4); abrupt smooth boundary. (0 to 5 inches thick)

A2—2 to 4 inches; light brownish gray (10YR 6/2) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, sticky and plastic; many very fine and few fine roots; common very fine tubular pores; 25 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 5 inches thick)

Bt1—4 to 7 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and few fine and medium roots; common very fine tubular pores; common thin clay films on faces of peds and lining pores; 25 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 4 inches thick)

Bt2—7 to 14 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; strong medium subangular blocky structure; hard, very friable, very sticky and very plastic; few very fine to medium roots; common very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 35 percent pebbles and 10 percent cobbles; mildly alkaline (pH 7.8); abrupt smooth boundary. (3 to 10 inches thick)

R—14 inches; altered andesite.

Type location: Elko County, Nevada; about 24 miles south of Elko, about 2.3 miles south and 0.2 mile east of the Elliott Ranch and 2.1 miles north and 0.2 mile east of the Hackwood Ranch, about 250 feet east and 2,000 feet north of the southwest corner of sec. 4, T. 30 N., R. 54 E.; north latitude of 40 degrees, 30 minutes, 44 seconds; west longitude of 115 degrees, 54 minutes, 30 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring

Soil temperature: 47 to 50 degrees F

Depth to bedrock: 10 to 20 inches

Control section: Clay content—25 to 35 percent; content of rock fragments—35 to 60 percent, mainly pebbles but 0 to 10 percent cobbles

A horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Structure—weak to strong platy or subangular blocky
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—4 to 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—very gravelly clay loam, very gravelly sandy clay loam, or very gravelly loam
- Structure—weak to strong very fine to very coarse subangular blocky or moderate or strong medium angular blocky
- Reaction—neutral to moderately alkaline

Spilock Series

The Spilock series consists of well drained soils that are very shallow or shallow over an indurated, lime-cemented hardpan. These soils formed in alluvium derived from limestone and conglomerate. They are on the side slopes of fan piedmont remnants. Slopes are 15 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 49 degrees F.

Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Xerollic Paleorthids

Typical pedon: Spilock very gravelly loam, 15 to 50 percent slopes, in an area of the Chiara-Spilock-Kelk association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; weak very thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine vesicular pores; 30 percent calcium carbonate equivalent (in the fraction less than 20 millimeters in size); 40 percent pebbles;

violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (1 to 4 inches thick)

A2—2 to 4 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; common very fine interstitial pores; 30 percent calcium carbonate equivalent (in the fraction less than 20 millimeters in size); 50 percent pebbles; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (1 to 4 inches thick)

Bk—4 to 10 inches; pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine, common medium, and few coarse roots; common very fine interstitial pores; 30 percent calcium carbonate equivalent (in the fraction less than 20 millimeters in size); 50 percent pebbles and hardpan fragments; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary. (4 to 8 inches thick)

Bkm—10 to 30 inches; white (10YR 8/2), weakly fractured, indurated petrocalcic layer with a discontinuous silica laminar cap ½ to 1 millimeter thick; matted in the upper part; violently effervescent; strongly alkaline (pH 8.5).

Type location: Elko County, Nevada; about 12 miles south of Elko, about 650 feet west and 1,000 feet south of the northeast corner of sec. 18, T. 33 N., R. 55 E.; north latitude of 40 degrees, 44 minutes, 50 seconds; west longitude of 115 degrees, 48 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry in summer and fall, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to a petrocalcic horizon: 8 to 14 inches

Calcium carbonate equivalent: 25 to 35 percent by weight in the fraction less than 20 millimeters in size

Control section: Clay content—18 to 25 percent; content of rock fragments—50 to 60 percent, mainly pebbles and petrocalcic hardpan fragments

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3 dry or moist
- Structure—platy in the upper part and subangular blocky or granular in the lower part

Bk horizon:
- Hue—10YR or 7.5YR
- Value—4 or 5 moist
- Chroma—2 or 3 dry, 3 or 4 moist
- Texture—very gravelly or extremely gravelly loam
- Clay content—18 to 25 percent
- Content of rock fragments—50 to 70 percent, mainly pebbles but some petrocalcic hardpan fragments

Bkm horizon:
- Hue—7.5YR or 10YR
- Reaction—moderately alkaline or strongly alkaline
- Other features—in most pedons, discontinuous silica laminar cap ½ millimeter to 2 millimeters thick

Stampede Series

The Stampede series consists of well drained soils that are moderately deep to an indurated duripan. These soils formed in alluvium derived from mixed rock sources. The soils are on fan piedmont remnants. Slopes are 2 to 15 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Aridic Durixerolls

Typical pedon: Stampede gravelly loam, 4 to 15 percent slopes, in an area of the Donna-Stampede-Gance association:

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine tubular and interstitial pores; 20 percent pebbles; neutral (pH 7.2); abrupt wavy boundary. (3 to 5 inches thick)

A2—3 to 7 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; strong thin and medium platy structure; slightly hard, very friable, sticky and plastic; many very fine and fine and common medium roots; few very fine tubular and many very fine interstitial pores; 20 percent pebbles; neutral (pH 6.8); abrupt wavy boundary. (4 to 8 inches thick)

A3—7 to 11 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; common very fine to medium and few coarse roots; many very fine tubular and common very fine interstitial pores; few thin clay films on faces of peds and bridging mineral

grains; 15 percent pebbles; neutral (pH 6.8); clear wavy boundary. (0 to 4 inches thick)

Bt1—11 to 17 inches; yellowish brown (10YR 5/4) clay, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, friable, very sticky and very plastic; many very fine to medium and few coarse roots; many very fine tubular pores; many thick clay films on faces of peds and lining pores; 10 percent pebbles; neutral (pH 6.8); clear wavy boundary. (6 to 12 inches thick)

Bt2—17 to 27 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 4/4) moist; few dark grayish brown (10YR 4/2) organic stains on faces of peds; strong coarse prismatic structure; very hard, very firm, very sticky and very plastic; common very fine and few fine and medium roots; few very fine tubular pores; continuous, prominent pressure faces; 10 percent pebbles; neutral (pH 6.8); clear wavy boundary. (0 to 11 inches thick)

Bt3—27 to 35 inches; yellowish brown (10YR 5/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; few very fine and fine roots; many very fine and few fine tubular pores; many moderate thick clay films on faces of peds and lining pores; few very fine pores lined with silica; 15 percent pebbles; neutral (pH 7.0); abrupt wavy boundary. (0 to 8 inches thick)

Bqkm—35 to 45 inches; pale brown (10YR 6/3), indurated duripan, dark yellowish brown (10YR 4/4) moist; very hard, very firm and brittle; continuous silica laminar cap 1 millimeter thick in the upper part and continuous strong lime filaments; 60 percent pebbles; noneffervescent in the matrix, strongly effervescent in the lime filaments; mildly alkaline (pH 7.4).

Type location: Elko County, Nevada; about 44 miles north of Elko, about 2,200 feet west and 2,850 feet north of the southeast corner of sec. 4, T. 40 N., R. 54 E.; north latitude of 41 degrees, 23 minutes, 13 seconds; west longitude of 115 degrees, 53 minutes, 48 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 13 inches

Depth to a duripan: 20 to 37 inches

Control section: Clay content—40 to 55 percent; content of rock fragments—0 to 10 percent pebbles

A horizon:
- Value—mainly 4 or 5 dry, 2 or 3 moist (6 dry and 4 moist common in the lower part)
- Chroma—2 or 3
- Structure—weak or moderate thin to thick platy or massive in the upper 3 to 5 inches and moderate or strong fine or medium granular or subangular blocky in the lower part
- Reaction—slightly acid or neutral

Bt horizon:
- Hue—10YR or 7.5YR
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—2 to 4
- Content of rock fragments—as much as 15 percent
- Structure—moderate or strong medium or coarse prismatic or fine to coarse subangular or angular blocky
- Reaction—neutral or mildly alkaline

Bqkm horizon:
- Reaction—mildly alkaline or moderately alkaline
- Other features—noneffervescent to strongly effervescent in the matrix but few to many lime coatings on the surface of the duripan or in fractures

Sumine Series

The Sumine series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from shale, conglomerate, chert, welded tuff, rhyolite, granite, and sandstone. These soils are on hills, mountains, and the side slopes of plateaus. Slopes are 15 to 75 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Aridic Argixerolls

Typical pedon: Sumine very gravelly loam, 15 to 50 percent slopes, in an area of the Sumine-Cleavage-Cleavage, very cobbly association:

A1—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 45 percent pebbles; neutral (pH 6.6); abrupt smooth boundary. (2 to 5 inches thick)

A2—3 to 6 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine and few fine

interstitial pores; 35 percent pebbles; neutral (pH 6.8); clear smooth boundary. (3 to 5 inches thick)
Bt1—6 to 14 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and few fine tubular pores; common thin clay films lining pores and coating faces of peds; 40 percent pebbles and 15 percent cobbles; neutral (pH 6.8); clear wavy boundary. (3 to 17 inches thick)
Bt2—14 to 27 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine and medium subangular blocky structure; hard, firm, sticky and plastic; few very fine roots; common very fine and few fine tubular pores; many moderately thick clay films coating faces of peds and lining pores; 50 percent pebbles and 10 percent cobbles; neutral (pH 6.8); abrupt wavy boundary. (5 to 18 inches thick)
R—27 inches; hard, slightly fractured conglomerate.

Type location: Elko County, Nevada; about 8 miles west of Elko, about 1,320 feet south and 510 feet west of the northeast corner of sec. 9, T. 34 N., R. 54 E.; north latitude of 40 degrees, 51 minutes, 06 seconds; west longitude of 115 degrees, 53 minutes, 37 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early July through mid-October, moist in places in winter and spring
Soil temperature: 42 to 47 degrees F
Thickness of the mollic epipedon: 8 to 15 inches
Depth to bedrock: 20 to 40 inches
Combined thickness of the A and Bt horizons: 20 to 40 inches
Reaction: Neutral or mildly alkaline
Control section: Clay content—25 to 35 percent when mixed; content of rock fragments—averages 35 to 60 percent

A horizon:
Chroma—2 or 3
Structure—weak or moderate very thin to medium platy or very fine to medium granular or subangular blocky

Bt horizon
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—3 or 4
Texture—dominantly clay loam but thin horizons of heavy loam or light clay in some pedons
Structure—mainly weak or moderate very fine to medium angular or subangular blocky; massive in the lower part in some pedons

Susie Creek Series

The Susie Creek series consists of deep and very deep, well drained soils that formed mostly in residuum derived from weakly welded tuff and rhyolite and a component of loess and volcanic ash. These soils are on the side slopes and summits of hills. Slopes are 4 to 50 percent. The mean annual precipitation is about 11 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine, montmorillonitic, frigid Durargidic Argixerolls

Typical pedon: Susie Creek gravelly loam, 4 to 15 percent slopes, in an area of the Susie Creek-Akler-Eboda association:

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very thin platy structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial and tubular pores; 15 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (1 to 4 inches thick)
A2—3 to 7 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine interstitial and tubular pores; 20 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (4 to 9 inches thick)
Bt1—7 to 15 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, sticky and plastic; common very fine and fine and few medium roots; common very fine to medium tubular pores; common thin clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.5); clear wavy boundary. (5 to 8 inches thick)
Bt2—15 to 22 inches; pale brown (10YR 6/3) sandy clay, brown (10YR 4/3) moist; moderate medium prismatic structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; many very fine and few fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (4 to 15 inches thick)
Bt3—22 to 30 inches; pale brown (10YR 6/3) sandy

clay, pale brown (10YR 6/3) moist; moderate medium and coarse subangular blocky structure; very hard, friable, sticky and plastic; few very fine roots; many very fine and common fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 10 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 8 inches thick)

Bq—30 to 38 inches; light gray (2.5Y 7/2) gravelly sandy loam that has common pale brown (10YR 6/3) organic stains along cemented plates; light yellowish brown (10YR 6/4) moist; massive; very hard, firm, brittle; common very fine matted roots along cemented plates; common fine tubular pores; 15 percent pebbles; weak continuous silica cementation; moderately alkaline (pH 7.9); abrupt smooth boundary. (0 to 8 inches thick)

Bqk—38 to 43 inches; white (2.5Y 8/2) sandy loam, light brownish gray (2.5Y 6/2) moist; massive; very hard, firm, brittle; few very fine tubular pores; few thin continuous silica lime laminae ½ to 1 millimeter thick; few fine soft lime masses; 5 percent pebbles; weak continuous silica and lime cementation; moderately alkaline (pH 8.0); clear wavy boundary.

Cr—43 inches; white (2.5Y 8/2), weathered tuff.

Type location: Elko County, Nevada; about 24 miles southwest of Elko, about 1,700 feet north and 300 feet west of the southeast corner of sec. 35, T. 31 N., R. 53 E.; north latitude of 40 degrees, 31 minutes, 31 seconds; west longitude of 115 degrees, 58 minutes, 05 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; moist in places from October through late June

Soil temperature: 45 to 47 degrees F

Thickness of the mollic epipedon: 7 to 12 inches

Depth to the base of the Bt horizon: 20 to 30 inches

Depth to weak silica cementation: 20 to 36 inches

Depth to paralithic or lithic contact: 40 to more than 60 inches

Control section: Clay content—35 to 50 percent; content of rock fragments—0 to 15 percent

Other features: Some pedons have a thin AB or BA horizon, which has common or many uncoated sand grains on faces of peds.

A horizon:
- Value—4 or 5 dry
- Chroma—2 or 3
- Structure—moderate or strong very fine to medium granular, platy, or subangular blocky
- Reaction—neutral or mildly alkaline

Bt horizon:
- Value—5 to 7 dry, 4 to 6 moist
- Chroma—3 or 4
- Texture—clay, silty clay, sandy clay, or clay loam
- Structure—moderate or strong fine or medium prismatic or subangular blocky
- Consistence—friable to very firm when moist
- Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
- Hue—2.5Y or 10YR
- Value—6 to 8 dry, 5 to 7 moist
- Chroma—2 to 4
- Texture—loam, sandy loam, or loamy sand
- Reaction—moderately alkaline or strongly alkaline
- Cementation—weak continuous silica cementation
- Consistence—very firm or firm and brittle when moist
- Other features—in some pedons weak silica cementation without secondary carbonates

Tenvorrd Series

The Tenvorrd series consists of well drained soils that are shallow to an indurated duripan. These soils formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. The soils are on fan piedmont remnants. Slopes are 4 to 15 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 49 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Durorthids

Typical pedon: Tenvorrd silt loam, 4 to 15 percent slopes, in an area of the Tenvorrd-Kodra association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, sticky and plastic; many very fine and fine roots; many very fine and few fine vesicular pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear wavy boundary. (2 to 5 inches thick)

A2—3 to 7 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine roots; common very fine and few fine tubular pores; 2 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (2 to 4 inches thick)

Bk1—7 to 16 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; hard, friable, sticky and plastic; common very fine and fine roots;

common very fine and few fine tubular pores; 2 percent pebbles; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (6 to 9 inches thick)

Bk2—16 to 20 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; hard, firm, sticky and plastic; common very fine roots; common very fine interstitial pores; 5 percent pebbles; 10 percent hard durinodes 5 to 10 millimeters thick; violently effervescent; strongly alkaline (pH 8.5); abrupt wavy boundary. (0 to 4 inches thick)

Bqkm—20 to 28 inches; white (10YR 8/2), indurated duripan that has continuous silica laminae 2 to 4 millimeters thick; pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm; violently effervescent; moderately alkaline (pH 8.1).

Type location: Elko County, Nevada; about 28 miles south of Carlin, about 1,500 feet north and 1,600 feet east of the southwest corner of sec. 25, T. 29 N., R. 52 E.; north latitude of 40 degrees, 21 minutes, 52 seconds; west longitude of 116 degrees, 03 minutes, 33 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to an indurated duripan: 10 to 20 inches

Control section: Clay content—18 to 25 percent

A horizon:
- Value—5 or 6 dry, 3 or 4 moist; where the upper 7 inches is mixed, more than 5.5 dry
- Chroma—2 or 3
- Structure—platy, subangular blocky, or massive
- Reaction—mildly alkaline or moderately alkaline

Bk horizon:
- Value—6 or 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Texture—silt loam or loam
- Effervescence—strongly effervescent or violently effervescent; lime in few or common filaments or disseminated
- Reaction—moderately alkaline or strongly alkaline
- Other features—as much as 10 percent durinodes in some pedons

Bqkm horizon:
- Value—7 or 8 dry, 6 or 7 moist
- Chroma—2 or 3
- Laminar cap—mainly continuous and 1 to 6 millimeters thick; fractured in the upper part in some pedons

Tuffo Series

The Tuffo series consists of very shallow and shallow, somewhat excessively drained soils that formed in residuum derived from tuff, welded tuff, and tuffaceous sandstone. These soils are in rock-core areas on fan piedmont remnants and hills. Slopes are 2 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Ashy, nonacid, mesic, shallow Xeric Torriorthents

Typical pedon: Tuffo fine sandy loam, 4 to 15 percent slopes, in an area of the Tuffo-Yuko-Tuffo, moderately steep association:

A—0 to 3 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium and thick platy structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine and medium roots; many very fine and common fine vesicular pores; 5 percent pebbles; mildly alkaline (pH 7.4); abrupt smooth boundary. (1 to 6 inches thick)

C—3 to 11 inches; light yellowish brown (10YR 6/4) very fine sandy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine tubular pores; 5 percent pebbles; mildly alkaline (pH 7.4); clear smooth boundary. (3 to 9 inches thick)

Cr1—11 to 23 inches; highly weathered and fractured tuffaceous sandstone; massive; few fine roots in fractures.

Cr2—23 to 42 inches; weathered and fractured tuffaceous sandstone; massive; common medium lime pendants on horizontal fracture planes.

Type location: Elko County, Nevada; about 1.5 miles north of the Reed Station turnoff along State Highway 226, about 2,335 feet south and 2,540 feet east of the northwest corner of sec. 8, T. 38 N., R. 54 E.; north latitude of 41 degrees, 12 minutes, 02 seconds; west longitude of 115 degrees, 55 minutes, 14 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to paralithic contact: 4 to 14 inches

Reaction: Neutral or mildly alkaline

Control section: Clay content—5 to 15 percent; content

of rock fragments—5 to 25 percent, mainly pebbles; content of pyroclastic material—60 to 75 percent

A horizon:
Value—5 to 7 dry, 3 or 4 moist
Chroma—2 to 4 dry or moist
Structure—weak or moderate thin to thick platy

C horizon:
Hue—2.5Y or 10YR
Value—6 or 7 dry, 4 or 5 moist
Chroma—2 to 4 dry or moist
Texture—dominantly very fine sandy loam or fine sandy loam; gravelly sandy loam in some pedons
Structure—weak or moderate fine or medium subangular blocky or massive

Cr horizon:
Carbonates—few or common lime seams along fracture planes
Weathering—from highly weathered material in the upper part to soft weathered material in the lower part

Tusel Series

The Tusel series consists of deep and very deep, well drained soils that formed in residuum and colluvium weathered from quartzite, welded tuff, conglomerate, chert, and shale and a component of loess with a high content of pyroclastic material. These soils are on mountain side slopes. Slopes are 15 to 75 percent. The mean annual precipitation is about 17 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed Argic Pachic Cryoborolls

Typical pedon: Tusel gravelly loam, 15 to 50 percent slopes, in an area of the Quarz-Tusel-Cleavage association:

A1—0 to 10 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; 15 percent pebbles and 5 percent cobbles; neutral (pH 6.8); gradual wavy boundary. (2 to 10 inches thick)

A2—10 to 19 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many very fine interstitial and common fine tubular pores; 25 percent pebbles and 5 percent cobbles; neutral (pH 6.8); clear wavy boundary. (7 to 15 inches thick)

2Bt1—19 to 28 inches; pale brown (10YR 6/3) very gravelly clay loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular structure; slightly hard, friable, sticky and plastic; common very fine and few fine and medium roots; common very fine and few fine tubular pores; few thin clay films on faces of peds and lining pores; 40 percent pebbles and 10 percent cobbles; neutral (pH 6.7); clear wavy boundary. (0 to 12 inches thick)

2Bt2—28 to 45 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and plastic; few fine roots; common very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 40 percent pebbles and 15 percent cobbles; neutral (pH 6.7); abrupt irregular boundary. (12 to 25 inches thick)

2R—45 inches; quartzite bedrock.

Type location: Elko County, Nevada; about 26 miles southwest of Elko, about 2,000 feet north and 2,000 feet west of the southeast corner of sec. 26, T. 30 N., R. 53 E.; north latitude of 40 degrees, 27 minutes, 08 seconds; west longitude of 115 degrees, 58 minutes, 25 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late July through September, moist from late fall to early summer
Soil temperature: 43 to 47 degrees F
Average summer soil temperature: 58 to 59 degrees F
Thickness of the mollic epipedon: 16 to 20 inches, including the upper part of the argillic horizon in some pedons
Depth to the base of the Bt horizon: 36 to more than 50 inches
Reaction: Slightly acid or neutral
Depth to bedrock: 40 to at least 80 inches
Control section: Clay content—25 to 35 percent; content of rock fragments—50 to 75 percent, mainly pebbles

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—weak to strong very fine to medium granular or subangular blocky

2Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—very gravelly or extremely gravelly sandy

clay loam or very gravelly or extremely gravelly clay loam; 40 to 60 percent sand
Clay content—averages 25 to 35 percent
Content of rock fragments—40 to 60 percent pebbles and 10 to 25 percent cobbles
Structure—weak to strong subangular or angular blocky; massive in the lower part in some pedons

Tustell Series

The Tustell series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on fan piedmont remnants and partial ballenas. Slopes are 2 to 30 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 inches.

Taxonomic class: Fine, montmorillonitic, mesic Durixerollic Haplargids

Typical pedon: Tustell gravelly loam, 4 to 15 percent slopes, in an area of the Tustell-Gance-Mahala association:

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate very thin and thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine vesicular and interstitial pores; 30 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (1 to 4 inches thick)

A2—2 to 5 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist; weak very thin and thin platy structure; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; many very fine vesicular and tubular pores; 10 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (2 to 5 inches thick)

Bt1—5 to 8 inches; pale brown (10YR 6/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, very friable, very sticky and very plastic; many very fine and common fine to coarse roots; many very fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 20 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (2 to 5 inches thick)

Bt2—8 to 14 inches; light yellowish brown (10YR 6/4) gravelly clay, brown (10YR 4/3) moist; moderate very fine and fine angular blocky structure; very hard, firm, very sticky and plastic; common very fine roots; many very fine tubular pores; many stress surfaces; 25 percent pebbles; moderately alkaline (pH 8.4); clear wavy boundary. (5 to 9 inches thick)

Bt3—14 to 19 inches; light yellowish brown (10YR 6/4) gravelly clay, yellowish brown (10YR 5/4) moist; weak fine prismatic structure parting to moderate fine and medium angular blocky; very hard, firm, very sticky and very plastic; common very fine roots; many very fine tubular pores; many stress surfaces; 30 percent pebbles; moderately alkaline (pH 8.4); abrupt wavy boundary. (4 to 8 inches thick)

Bqk—19 to 30 inches; white (10YR 8/2) gravelly loam, light yellowish brown (10YR 6/4) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine roots; many very fine interstitial pores; 25 percent pebbles; weak continuous silica and lime cementation; violently effervescent; strongly alkaline (pH 9.0); clear irregular boundary. (6 to 13 inches thick)

2Cqk—30 to 60 inches; variegated very gravelly loamy sand; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; many very fine interstitial pores; alternating thin to thick discontinuous weak lime- and silica-cemented lenses; thick lime and silica coatings on pebbles; 55 percent pebbles; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 28 miles northwest of Elko, about 2,300 feet south and 200 feet west of the northeast corner of sec. 30, T. 39 N., R. 54 E.; north latitude of 41 degrees, 14 minutes, 31 seconds; west longitude of 115 degrees, 55 minutes, 36 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early June through early November, moist in winter and spring
Soil temperature: 47 to 52 degrees F
Depth to the Bqk horizon: 16 to 30 inches
Depth to the 2Cqk horizon: 22 to 36 inches
Control section: Clay content—35 to 45 percent; content of rock fragments—10 to 30 percent

A horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3
Structure—very thin to medium platy or weak subangular blocky
Reaction—mildly alkaline or moderately alkaline

Bt horizon:
Hue—7.5YR or 10YR
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry, 3 or 4 moist

Texture—clay, gravelly clay, or gravelly clay loam
Clay content—35 to 45 percent
Content of rock fragments—10 to 30 percent, mainly pebbles
Structure—subangular or angular blocky in the upper part and angular blocky or prismatic in the lower part
Reaction—mildly alkaline or moderately alkaline

Bqk horizon:
Hue—2.5Y or 10YR
Value—7 or 8 dry, 5 or 6 moist
Chroma—2 to 4
Texture—sandy loam, gravelly sandy loam, or gravelly loam
Clay content—8 to 18 percent
Content of rock fragments—10 to 30 percent, mainly pebbles
Reaction—moderately alkaline or strongly alkaline
Other features—weak continuous silica and lime cementation in at least one subhorizon 6 or more inches thick; also, thin subhorizons with as much as 50 percent hard durinodes in some pedons

2Cqk horizon:
Texture—stratified very gravelly loamy sand to gravelly loamy fine sand
Content of rock fragments—35 to 60 percent, mainly pebbles

Tweba Series

The Tweba series consists of very deep, very poorly drained soils that formed in loamy alluvium derived from mixed rock sources. These soils are on flood plains along streams. Slopes are 0 to 2 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Coarse-loamy, mixed (calcareous), mesic Aeric Fluvaquents

Typical pedon: Tweba very fine sandy loam, 0 to 2 percent slopes, in an area of the Tweba-Moranch association:

A—0 to 1 inch; light gray (2.5Y 7/2) very fine sandy loam overwash, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; ¼- to ½-inch layer of undecomposed organic matter on the surface; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary. (1 to 7 inches thick)

C1—1 to 6 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; common fine distinct brown (10YR 4/3 moist) and few fine faint dark brown (10YR 3/3 moist) mottles; massive; slightly hard, friable, nonsticky and slightly plastic; many very fine to medium roots; many very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary. (3 to 14 inches thick)

C2—6 to 12 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine distinct yellowish brown (10YR 5/4 moist) and few fine faint dark brown (10YR 3/3 moist) mottles; weak medium prismatic structure and weak and moderate thin and medium platy fine stratification in place; hard, friable, sticky and plastic; common very fine and fine roots; common very fine and few fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear wavy boundary. (4 to 12 inches thick)

C3—12 to 19 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; common fine distinct yellowish brown (10YR 5/6 moist) and dark brown (7.5YR 4/4 moist) mottles; massive and weak very thin and thin platy stratification; hard, friable, sticky and plastic; few very fine roots; many very fine and fine tubular pores; common thin films lining fine pores; lens of silty clay loam 1 inch thick along the upper boundary; strongly effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary. (5 to 10 inches thick)

C4—19 to 34 inches; light brownish gray (2.5Y 6/2) fine sandy loam, grayish brown (2.5Y 5/2) moist; common fine and medium distinct strong brown (7.5YR 5/6 moist), dark brown (7.5YR 4/4 moist), and dark yellowish brown (10YR 4/4 moist) mottles; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine tubular pores; horizontal lens of charcoal ½ inch thick; many mica particles; strongly effervescent; very strongly alkaline (pH 9.4); gradual wavy boundary. (11 to 15 inches thick)

C5—34 to 60 inches; light gray (10YR 7/1) and light brownish gray (2.5Y 6/2), stratified very fine sandy loam and loamy sand, grayish brown (10YR 5/2 and 2.5Y 5/2) moist; common fine and medium distinct brown (7.5YR 5/4 moist), strong brown (7.5YR 5/6 moist), dark brown (10YR 3/3 moist), and dark yellowish brown (10YR 4/4 moist) mottles; massive; slightly hard and hard, very friable, nonsticky and slightly sticky, nonplastic and slightly plastic; few very fine roots; many very fine and fine tubular pores; common thin films lining fine pores; many mica particles; strongly effervescent; strongly alkaline (pH 8.6).

Type location: Elko County, Nevada; about 18 miles south of Elko, near Twin Bridges on Huntington Creek, about 0.35 mile east and 0.3 mile north of the approximate southwest corner of sec. 36, T. 32 N., R. 55 E.; north latitude of 40 degrees, 36 minutes, 50 seconds; west longitude of 115 degrees, 43 minutes, 50 seconds

Range in Characteristics

Soil moisture: Dry in midsummer and early fall; moist in late fall and in winter, spring, and early summer; an apparent seasonal high water table between depths of 14 and 20 inches for some time in most years, usually from February through June; drained phases in some areas

Soil temperature: 47 to 52 degrees F

Control section: Clay content—10 to 18 percent when mixed; texture—mainly fine sandy loam or very fine sandy loam but includes stratified very fine sandy loam, fine sandy loam, loam, or silt loam in the upper part and very fine sandy loam, fine sandy loam, sandy loam, loamy fine sand, or loamy sand in the lower part (loamy fine sand and loamy sand are more common at a depth of more than 35 inches)

Other features: Some pedons have one or more buried A horizons with hue of 10YR or 5Y, value of 5 or 6 dry and 3 moist, and chroma of 1 or 2 at a depth of more than 30 inches.

A horizon:
- Hue—2.5Y or 10YR
- Value—5 to 7 dry, 3 to 5 moist
- Chroma—2 or 3
- Structure—very fine angular blocky, very thin platy, or massive
- Reaction—mildly alkaline to strongly alkaline
- Effervescence—noneffervescent to strongly effervescent

C horizon:
- Hue—2.5Y or 10YR
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—1 to 3 dry, 2 or 3 moist
- Reaction—mildly alkaline to very strongly alkaline
- Effervescence—slightly effervescent to strongly effervescent to a depth of 30 to 45 inches and noneffervescent to strongly effervescent in the lower part

Tweener Series

The Tweener series consists of very shallow and shallow, well drained soils that formed in residuum and colluvium derived from welded tuff, rhyolite, chert, shale, and conglomerate. These soils are on hills and mountains. Slopes are 2 to 50 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon: Tweener very gravelly loam, 4 to 15 percent slopes, in an area of the Shalcleav-Tweener association:

A—0 to 4 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark brown (10YR 2/2) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and few fine to coarse roots; many very fine tubular pores; 35 percent pebbles and 5 percent cobbles; neutral (pH 7.3); abrupt smooth boundary. (3 to 8 inches thick)

Bt—4 to 10 inches; brown (10YR 4/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, sticky and plastic; many very fine and few fine to coarse roots; many very fine tubular pores; common thin clay films on faces of peds and bridging mineral grains and colloid stains on mineral grains; 25 percent pebbles and 15 percent cobbles; neutral (pH 7.3); abrupt smooth boundary. (3 to 6 inches thick)

R—10 inches; hard rhyolite.

Type location: Elko County, Nevada; about 49 miles north of Wells and 1 mile east of the Humboldt National Forest, about 2,000 feet east and 2,500 feet south of the northwest corner of sec. 13, T. 45 N., R. 60 E.; north latitude of 41 degrees, 47 minutes, 37 seconds; west longitude of 115 degrees, 08 minutes, 17 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry for 70 to 100 consecutive days from late July through October, moist in winter and spring

Soil temperature: 44 to 47 degrees F

Thickness of the mollic epipedon: 7 to 14 inches, including all of the argillic horizon

Depth to bedrock: 7 to 14 inches

Control section: Clay content—18 to 35 percent; content of rock fragments—35 to 60 percent, mainly cobbles and stones

A horizon:
- Value—4 or 5 dry, 2 or 3 moist

Bt horizon:
- Value—4 or 5 dry, 2 or 3 moist

Chroma—2 or 3
Texture—very cobbly clay loam or very cobbly loam
Clay content—25 to 40 percent

Upsteer Series

The Upsteer series consists of very deep, well drained soils that formed in silty loess over loamy alluvium derived mainly from tuff. These soils are on the side slopes of hills. Slopes are 15 to 50 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 44 degrees F.

Taxonomic class: Fine-silty, mixed, frigid Aridic Duric Haploxerolls

Typical pedon: Upsteer silt loam, 30 to 50 percent slopes, in an area of the Yuko-Tuffo-Upsteer association:

A1—0 to 3 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine interstitial pores; 10 percent pebbles; neutral (pH 7.2); clear wavy boundary. (2 to 5 inches thick)

A2—3 to 11 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; common very fine and few fine tubular pores; 10 percent pebbles; neutral (pH 7.2); gradual wavy boundary. (5 to 11 inches thick)

Bw—11 to 35 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, few fine, and few medium roots; common very fine and few fine tubular pores; 5 percent pebbles; neutral (pH 7.2); clear wavy boundary. (18 to 28 inches thick)

Bq—35 to 61 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and few very fine roots; common very fine tubular pores; 5 percent pebbles; 30 percent firm durinodes 5 to 15 millimeters thick; neutral (pH 7.2).

Type location: Elko County, Nevada; about 14 miles northwest of Elko, about 10 feet north and 2,500 feet west of the southeast corner of sec. 33, T. 35 N., R. 53 E.; north latitude of 40 degrees, 52 minutes, 13 seconds; west longitude of 116 degrees, 00 minutes, 59 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 10 to 15 inches
Depth to the Bq horizon: 25 to 38 inches
Control section: Clay content—20 to 30 percent; content of rock fragments—as much as 5 percent; sand fraction—less than 15 percent fine sand or coarser sand

A horizon:
Chroma—2 or 3 dry or moist
Structure—fine, thin, or medium platy or subangular blocky

Bw horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 or 3 dry or moist
Texture—silt loam or silty clay loam
Structure—fine or medium subangular blocky

Bq horizon:
Value—6 or 7 dry, 3 or 4 moist
Texture—loam or silt loam
Reaction—neutral or mildly alkaline
Effervescence—mainly noneffervescent, but slightly effervescent in some parts of the horizon
Durinodes—20 to 50 percent in a friable or very friable matrix

Upville Series

The Upville series consists of very deep, well drained, moderately permeable soils that formed in alluvium derived from granitic rocks. These soils are on stream terraces. Slopes are 0 to 4 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Sandy-skeletal, mixed, frigid Aridic Haploxerolls

Typical pedon: Upville gravelly loam, 0 to 4 percent slopes, in an area of the Upville-Connel-Halleck association:

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine and common medium tubular pores;

15 percent pebbles; neutral (pH 7.2); clear smooth boundary. (2 to 5 inches thick)

A2—3 to 10 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine and medium, and few coarse roots; common very fine and fine tubular pores; 15 percent pebbles; neutral (pH 6.6); clear smooth boundary. (4 to 10 inches thick)

Bw—10 to 19 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark brown (10YR 3/3) moist; common fine distinct yellowish brown (10YR 5/6) iron mottles and dark gray (10YR 4/1) manganese mottles; moderate medium angular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine tubular pores; 45 percent pebbles; neutral (pH 6.6); clear smooth boundary. (5 to 12 inches thick)

2C—19 to 61 inches; light yellowish brown (2.5Y 6/4) extremely gravelly coarse sand, olive brown (2.5Y 4/4) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; 65 percent pebbles, 15 percent cobbles, and 3 percent stones; neutral (pH 7.0).

Type location: Elko County, Nevada; about 3 miles southwest of Lamoille, about 1,050 feet east and 525 feet north of the southwest corner of sec. 26, T. 33 N., R. 57 E.; north latitude of 40 degrees, 42 minutes, 35 seconds; west longitude of 115 degrees, 31 minutes, 25 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from mid-June through October, moist in places in winter and spring

Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 10 to 15 inches

Mottles: None in some pedons; iron and manganese mottles are relict or the result of irrigation

Depth to the 2C horizon: 15 to 27 inches

Control section: Clay content—averages 5 to 12 percent; content of rock fragments—averages 50 to 75 percent, mainly pebbles

A horizon:
- Chroma—2 or 3
- Structure—platy, granular, or subangular or angular blocky

Bw horizon:
- Value—5 or 6 dry, 3 or 4 moist
- Chroma—3 or 4
- Texture—mainly very gravelly loam or very gravelly sandy loam; thin subhorizons of gravelly coarse sandy loam in some pedons
- Clay content—15 to 22 percent
- Content of rock fragments—20 to 45 percent, mainly pebbles and some cobbles

2C horizon:
- Hue—2.5Y or 10YR
- Value—5 or 6 dry, 4 or 5 moist
- Chroma—4 to 6 dry
- Texture—extremely cobbly loamy sand, extremely cobbly sand, or extremely gravelly coarse sand
- Clay content—0 to 5 percent
- Content of rock fragments—60 to 85 percent, mainly pebbles and cobbles

Vanwyper Series

The Vanwyper series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from sedimentary and volcanic rock sources. These soils are on ridges and the side slopes of hills, mountains, and partial ballenas with a rock core. Slopes are 15 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 45 degrees F.

Taxonomic class: Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids

Typical pedon: Vanwyper very cobbly loam, 15 to 30 percent slopes, in an area of the Linkup-Roca-Vanwyper association:

A1—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; strong thin and medium platy structure; soft, very friable, slightly sticky and plastic; many very fine and few fine roots; many very fine vesicular pores; 20 percent pebbles and 20 percent cobbles; neutral (pH 6.8); abrupt smooth boundary. (1 to 5 inches thick)

A2—3 to 8 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and few fine and medium roots; common very fine and few fine tubular pores; 20 percent pebbles and 20 percent cobbles; neutral (pH 7.2); clear wavy boundary. (4 to 8 inches thick)

Bt1—8 to 11 inches; pale brown (10YR 6/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, sticky and very plastic; many very fine and few fine roots; common very fine tubular pores; common thin clay films on faces of peds and lining

pores; 10 percent pebbles and 35 percent cobbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (0 to 8 inches thick)

Bt2—11 to 21 inches; pale brown (10YR 6/3) very cobbly clay, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; many thin clay films on faces of peds and lining pores; 20 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.4); clear wavy boundary. (6 to 20 inches thick)

Bt3—21 to 29 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 15 percent pebbles and 25 percent cobbles; mildly alkaline (pH 7.6); clear wavy boundary. (0 to 9 inches thick)

Bt4—29 to 39 inches; light yellowish brown (10YR 6/4) cobbly clay, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; many moderately thick clay films on faces of peds and lining pores; 15 percent pebbles and 15 percent cobbles; mildly alkaline (pH 7.6); abrupt irregular boundary. (0 to 12 inches thick)

R—39 inches; unweathered quartzite.

Type location: Elko County, Nevada; about 16 miles north of Elko, about 1,700 feet north and 2,150 feet east of the southwest corner of sec. 29, T. 37 N., R. 56 E.; north latitude of 41 degrees, 03 minutes, 50 seconds; west longitude of 115 degrees, 41 minutes, 26 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through mid-October, moist in places in winter and spring

Soil temperature: 47 to 50 degrees F

Thickness of the solum and depth to bedrock: 20 to 40 inches

Reaction: Neutral or mildly alkaline

Control section: Content of rock fragments—35 to 60 percent, mainly cobbles; clay content—35 to 55 percent

A horizon:
- Value—3 or 4 moist
- Chroma—2 or 3
- Structure—weak to strong very thin to medium platy or very fine to medium subangular blocky

Bt horizon:
- Hue—10YR or 7.5YR
- Value—4 to 6 dry, 3 to 5 moist
- Chroma—3 or 4
- Texture—mainly very cobbly clay loam or very cobbly clay; cobbly clay loam or cobbly clay in parts of the horizon
- Structure—angular or subangular blocky in the upper part and prismatic in the lower part
- Other features—in some pedons a thin coating of carbonates on the underside of rock fragments

Vitale Series

The Vitale series consists of moderately deep, well drained soils that formed in residuum and colluvium weathered from welded tuff. These soils are on mountain plateaus and side slopes. Slopes are 4 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 41 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical pedon: Vitale very gravelly loam, 4 to 15 percent slopes, rubbly, in an area of the Vitale-Ebic-Chen association:

A—0 to 6 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine, common fine, and few medium tubular pores; 40 percent pebbles; slightly acid (pH 6.4); clear smooth boundary. (4 to 10 inches thick)

Bt1—6 to 15 inches; brown (10YR 5/3) very gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium tubular pores; common thin clay films on faces of peds and lining pores; 40 percent pebbles and 10 percent cobbles; neutral (pH 6.6); clear wavy boundary. (4 to 15 inches thick)

Bt2—15 to 23 inches; light yellowish brown (10YR 6/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic;

common very fine roots; common very fine and fine tubular pores; common thin clay films on faces of peds and lining pores; 45 percent pebbles and 10 percent cobbles; neutral (pH 6.6); clear wavy boundary. (4 to 15 inches thick)
R—23 inches; welded tuff.

Type location: Elko County, Nevada; about 7 miles south of Three Creek School, Idaho; about 250 feet north and 500 feet west of the southeast corner of sec. 11, T. 47 N., R. 60 E.; north latitude of 41 degrees, 58 minutes, 13 seconds; west longitude of 115 degrees, 08 minutes, 35 seconds

Range in Characteristics

Soil moisture: Usually moist, but dry for 50 to 70 consecutive days in summer and autumn when the soil temperature is above 47 degrees F
Mean annual soil temperature: 40 to 44 degrees F
Thickness of the solum and depth to bedrock: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 17 inches
Other features: A Bt3 horizon in some pedons

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—1 to 3 moist or dry
Structure—weak or moderate platy, granular, or subangular blocky
Reaction—slightly acid or neutral

Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4 moist or dry
Clay content—28 to 35 percent
Content of rock fragments—35 to 60 percent, mainly pebbles
Structure—in some pedons massive in the part of the horizon directly above the bedrock
Reaction—neutral or mildly alkaline

Vitale Variant

The Vitale Variant consists of deep, well drained soils that formed in colluvium and residuum derived from welded tuff. These soils are on the side slopes of plateaus. Slopes are 50 to 75 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical pedon: Vitale Variant very cobbly silt loam, 50 to 75 percent slopes, in an area of the Siri Variant-Sumine-Vitale Variant association:

A1—0 to 5 inches; grayish brown (10YR 5/2) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine and common medium tubular pores; 25 percent pebbles, 20 percent cobbles, and 10 percent stones; neutral (pH 6.8); clear smooth boundary. (4 to 6 inches thick)
A2—5 to 12 inches; brown (10YR 5/3) very gravelly silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine and fine and few medium tubular pores; 35 percent pebbles; neutral (pH 7.0); clear wavy boundary. (6 to 9 inches thick)
Bt1—12 to 19 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; strong medium and fine subangular blocky structure; slightly hard, friable, sticky and plastic; many very fine, common fine, and few medium roots; many very fine and fine and few medium tubular pores; common thick clay films on faces of peds and lining pores; 50 percent pebbles; neutral (pH 7.0); gradual wavy boundary. (6 to 9 inches thick)
Bt2—19 to 33 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few fine and very fine roots; common very fine and fine tubular pores; common moderately thick clay films on faces of peds and lining pores; 55 percent pebbles; neutral (pH 7.0); gradual wavy boundary. (10 to 20 inches thick)
Bt3—33 to 43 inches; pale brown (10YR 6/3) extremely gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, sticky and plastic; few very fine roots; common very fine and fine tubular pores; few thin clay films on faces of peds and lining pores; 60 percent pebbles; neutral (pH 7.0); clear wavy boundary. (10 to 20 inches thick)
R—43 inches; fractured, welded tuff.

Type location: Elko County, Nevada; about .25 mile north of Rowland, about 1,300 feet west and 200 feet north of the southeast corner of sec. 20, T. 47 N., R. 56 E.; north latitude of 41 degrees, 56 minutes, 25 seconds; west longitude of 115 degrees, 40 minutes, 25 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from July through October, moist in winter and spring
Soil temperature: 43 to 47 degrees F
Thickness of the mollic epipedon: 10 to 19 inches, including the upper part of the argillic horizon
Depth to the base of the argillic horizon and to bedrock: 40 to 60 inches
Control section: Clay content—27 to 35 percent; content of rock fragments—45 to 65 percent, mainly pebbles

A horizon:
Chroma—2 or 3
Structure—medium or fine subangular blocky

Bt horizon:
Value—5 or 6 dry, 3 or 4 moist
Chroma—2 to 4
Texture—very gravelly or extremely gravelly clay loam
Clay content—27 to 35 percent
Content of rock fragments—45 to 65 percent, mainly pebbles
Structure—moderate or strong fine or medium subangular blocky

Wedekind Series

The Wedekind series consists of shallow, well drained soils that formed in residuum weathered from andesite and rhyolite. These soils are on hills. Slopes are 30 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Aridic Argixerolls

Typical pedon: Wedekind coarse sandy loam, 30 to 50 percent slopes, in an area of the Izod, steep-Wedekind-Izod association:

A—0 to 2 inches; grayish brown (10YR 5/2) coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; neutral (pH 7.3); clear wavy boundary. (2 to 5 inches thick)
Bt1—2 to 6 inches; dark grayish brown (10YR 4/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine and few medium roots; common very fine tubular pores; few thin clay films on faces of peds; neutral (pH 7.3); clear irregular boundary. (3 to 6 inches thick)
Bt2—6 to 12 inches; brown (10YR 5/3) sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; common very fine roots; common very fine tubular pores; few faint clay films on faces of peds; neutral (pH 7.3); clear irregular boundary. (5 to 10 inches thick)
Cr—12 to 42; highly weathered, altered andesite; common very fine roots; common thin lime coatings on fracture planes.

Type location: Elko County, Nevada; about 10 miles northeast of Elko; about 450 feet south and 200 feet west of the northeast corner of sec. 15, T. 35 N., R. 56 E.; north latitude of 40 degrees, 55 minutes, 31 seconds; west longitude of 115 degrees, 38 minutes, 31 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from late June through October, moist in places in winter and spring
Soil temperature: 49 to 52 degrees F
Depth to paralithic contact: 10 to 20 inches
Reaction: Neutral or slightly acid
Control section: Clay content—18 to 27 percent; content of rock fragments—5 to 35 percent

A horizon:
Value—4 or 5 dry, 2 or 3 moist
Chroma—2 or 3
Structure—platy or granular

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5 dry, 3 or 4 moist
Chroma—2 to 4
Texture—mainly sandy clay loam; sandy loam or clay loam in part of the horizon in some pedons
Clay content—20 to 35 percent
Content of rock fragments—as much as 10 percent, mainly pebbles

Welch Series

The Welch series consists of very deep, poorly drained soils that formed in alluvium derived from mixed volcanic rock sources and a component of vitric pyroclastic material. These soils are on inset fans, on flood plains along streams, and in narrow valleys and drainageways on hills and mountains. Slopes are 0 to 8 percent. The mean annual precipitation is about 14 inches, and the mean annual temperature is about 42 degrees F.

Taxonomic class: Fine-loamy, mixed, frigid Cumulic Haplaquolls

Typical pedon: Welch silty clay loam, frequently flooded, 2 to 4 percent slopes, in an area of the Welch, drained-Welch association:

A1—0 to 4 inches; very dark gray (10YR 3/1) silty clay loam, black (10YR 2/1) moist; strong thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine interstitial and tubular pores; neutral (pH 7.0); clear smooth boundary. (2 to 20 inches thick)

A2—4 to 9 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and plastic; many fine and very fine roots; many fine tubular and interstitial pores; neutral (pH 7.0); clear wavy boundary. (2 to 18 inches thick)

A3—9 to 29 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; strong medium and fine subangular blocky structure; hard, friable, sticky and plastic; many fine and very fine roots; many fine interstitial and tubular pores; neutral (pH 7.2); clear wavy boundary. (10 to 22 inches thick)

Cg1—29 to 43 inches; gray (5Y 6/1) clay loam, dark gray (5Y 4/1) moist; common distinct gleyed mottles; strong medium subangular blocky structure; hard, firm, sticky and plastic; few very fine and fine roots; common fine tubular pores; neutral (pH 7.0); clear wavy boundary. (0 to 14 inches thick)

Cg2—43 to 61 inches; light gray (5Y 7/1) sandy clay loam, gray (5Y 5/1) moist; many distinct gleyed mottles and few fine prominent iron mottles; massive; hard, friable, slightly sticky and slightly plastic; common fine roots; common fine tubular pores; neutral (pH 6.8).

Type location: Elko County, Nevada; about 11 miles southeast of the Wildhorse Reservoir, about 300 feet west of a road in a meadow, NE¼NW¼NW¼ sec. 30, T. 42 N., R. 56 E.; north latitude of 41 degrees, 30 minutes, 30 seconds; west longitude of 115 degrees, 42 minutes, 19 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for a least 1 month during most years, mainly during late winter and early spring; a water table at a depth of 18 to 36 inches from early spring to September; drained phases in some areas

Soil temperature: 42 to 46 degrees F

Thickness of the mollic epipedon: 26 to at least 60 inches; content of organic matter decreasing irregularly with increasing depth

Control section: Clay content—27 to 35 percent when mixed; texture—stratified sandy clay loam and clay loam; mineralogy—mixed, but a large component of vitric pyroclastic material in the parent material

Other features: A buried A horizon is common; some pedons have gravelly strata or strata of silty clay loam, silt loam, clay loam, very fine sandy loam, or sandy loam.

A horizon:
- Hue—10YR to 5Y or neutral
- Value—3 to 5 dry, 2 or 3 moist
- Chroma—0 to 3 in the upper part and 0 to 2 in the lower part
- Structure—weak to strong thin or medium platy; weak or moderate very fine to medium prismatic, granular, or subangular blocky; or massive in the lower part
- Reaction—slightly acid or neutral
- Other features—in some pedons high-chroma, yellowish iron mottles

C horizon:
- Hue—10YR to 5Y or neutral
- Value—5 to 8 dry, 3 to 5 moist
- Chroma—0 to 2
- Reaction—slightly acid to mildly alkaline
- Mottles—high-chroma iron mottles in many pedons

Welsum Series

The Welsum series consists of very deep, very poorly drained soils that formed in alluvium derived from mixed rock sources. These soils are on flood plains along streams. Slopes are 0 to 2 percent. The mean annual precipitation is about 12 inches, and the mean annual temperature is about 43 degrees F.

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid Cumulic Haplaquolls

Typical pedon: Welsum silt loam, 0 to 2 percent slopes, in an area of the Hussa-Halleck-Welsum association:

A1—0 to 2 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; moderate fine granular structure; hard, friable, sticky and plastic; many very fine and common fine roots; common very fine interstitial and tubular pores; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (1 to 3 inches thick)

A2—2 to 13 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; strong fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and few medium roots; common fine and medium tubular pores; violently

effervescent; moderately alkaline (pH 8.2); clear smooth boundary. (9 to 13 inches thick)

A3—13 to 20 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; common fine distinct brown (10YR 5/3) mottles; moderate fine subangular blocky structure; hard, friable, sticky and plastic; common very fine and medium roots; many very fine interstitial and few fine tubular pores; violently effervescent; mildly alkaline (pH 7.6); clear smooth boundary. (5 to 10 inches thick)

A4—20 to 25 inches; grayish brown (10YR 5/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; common fine faint brown (10YR 5/3) mottles; moderate medium and coarse subangular blocky structure; hard, friable, very sticky and very plastic; common very fine to medium roots; common very fine interstitial and fine tubular pores; violently effervescent; mildly alkaline (pH 7.6); clear smooth boundary. (4 to 7 inches thick)

2A5—25 to 32 inches; dark grayish brown (10YR 4/2) clay loam, black (10YR 2/1) moist; common fine faint brown (10YR 5/3) mottles; moderate medium and coarse subangular blocky structure; hard, friable, very sticky and very plastic; common very fine and fine roots; common very fine and fine tubular pores; 5 percent pebbles and 5 percent cobbles; slightly effervescent; mildly alkaline (pH 7.6); clear smooth boundary. (6 to 9 inches thick)

2A6—32 to 35 inches; dark grayish brown (10YR 4/2) cobbly clay loam, black (10YR 2/1) moist; few fine prominent strong brown (7.5YR 4/6) mottles; massive; hard, friable, very sticky and very plastic; few fine and medium roots; common fine and few very fine tubular pores; 5 percent pebbles and 20 percent cobbles; mildly alkaline (pH 7.6); abrupt wavy boundary. (0 to 5 inches thick)

3C—35 to 61 inches; pale brown (10YR 6/3) extremely cobbly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few medium roots; 45 percent pebbles, 20 percent cobbles, and 5 percent stones; mildly alkaline (pH 7.6)

Type location: Elko County, Nevada; about 20 miles east and 6 miles south of Elko, about 2,200 feet west and 600 feet north of the southeast corner of sec. 8, T. 33 N., R. 58 E.; north latitude of 40 degrees, 45 minutes, 12 seconds; west longitude of 115 degrees, 26 minutes, 29 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years, mainly from February through June

Soil temperature: 43 to 47 degrees F

Thickness of the mollic epipedon: 25 to 40 inches

Depth to the 3C horizon: 25 to 40 inches

Reaction: Mildly alkaline or moderately alkaline

Control section: Clay content—averages 27 to 35 percent in the upper part and 0 to 5 percent in the lower part; texture—silty clay loam or clay loam in the upper part and extremely cobbly loamy sand, very cobbly sand, or extremely gravelly sand in the lower part; content of rock fragments—0 to 10 percent, mainly pebbles, in the upper part and 35 to 70 percent, mainly pebbles and cobbles, in the lower part

A horizon:

Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2

Structure—granular, subangular blocky, or massive

Effervescence—strongly effervescent or violently effervescent in the upper part and slightly effervescent or noneffervescent in the lower part

Wieland Series

The Wieland series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on the summits and side slopes of fan piedmont remnants. Slopes are 2 to 30 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine, montmorillonitic, mesic Durixerollic Haplargids

Typical pedon: Wieland very gravelly loam, 15 to 30 percent slopes, in an area of the Hunnton-Wieland-Hunnton, gravelly association:

A—0 to 2 inches; light brownish gray (10YR 6/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine vesicular and interstitial pores; 40 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (1 to 8 inches thick)

Bt1—2 to 5 inches; light brownish gray (10YR 6/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; many very fine and common fine roots; many very fine tubular pores; few thin clay films on faces of peds and lining pores; 20 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 6 inches thick)

Bt2—5 to 8 inches; pale brown (10YR 6/3) gravelly clay,

dark brown (10YR 3/3) moist; weak fine and medium angular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine to medium roots; many very fine tubular pores; many thin clay films on faces of peds and lining pores; 25 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (2 to 6 inches thick)

Bt3—8 to 14 inches; pale brown (10YR 6/3) gravelly clay, brown (10YR 4/3) moist; weak fine and medium prismatic structure; hard, friable, very sticky and very plastic; common very fine roots; common very fine tubular pores; many thin and moderately thick pressure faces; 30 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 7 inches thick)

Bt4—14 to 19 inches; light gray (10YR 7/2) gravelly clay, brown (10YR 4/3) moist; weak fine and medium prismatic structure; very hard, friable, very sticky and very plastic; common very fine roots; few very fine tubular pores; continuous thin and moderately thick pressure faces; 30 percent pebbles; moderately alkaline (pH 8.0); abrupt wavy boundary. (0 to 6 inches thick)

Bt5—19 to 26 inches; pale brown (10YR 6/3) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium prismatic structure; very hard, friable and firm, very sticky and very plastic; common very fine roots along faces of prisms; few very fine tubular pores; continuous moderately thick pressure faces; 20 percent pebbles; moderately alkaline (pH 8.0); clear wavy boundary. (0 to 10 inches thick)

Bqk1—26 to 42 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 4/3) moist; few fine distinct brownish yellow (10YR 6/6 moist) and yellowish brown (10YR 5/4 moist) relict mottles; weak medium and coarse prismatic structure; very hard, firm, brittle when wet; few very fine tubular pores; 20 percent hard, firm durinodes 15 to 25 millimeters thick; common thin silica coatings; common fine lime in filaments; 30 percent pebbles; weak continuous silica cementation; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (5 to 19 inches thick)

Bqk2—42 to 52 inches; light gray (10YR 7/2) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; few fine distinct brownish yellow (10YR 6/6 moist) and few fine faint brown (10YR 4/3 moist) relict mottles; massive; very hard, firm, brittle when wet; few very fine tubular pores; 20 percent hard, firm durinodes 15 to 25 millimeters thick; continuous thin and moderately thick silica coatings; common fine lime and gypsum in filaments; 30 percent pebbles; weak continuous silica cementation; slightly effervescent; moderately alkaline (pH 8.4); clear wavy boundary. (0 to 9 inches thick)

Cqky—52 to 60 inches; light gray (10YR 7/2) loam, dark yellowish brown (10YR 4/4) moist; common fine distinct brownish yellow (10YR 6/6 moist) and common fine faint dark yellowish brown (10YR 4/4 moist) relict mottles; common fine distinct dark grayish brown (10YR 4/2 moist) and very dark brown (10YR 2/2 moist) iron-manganese stains; massive; very hard, friable, slightly sticky and slightly plastic; few very fine tubular pores; 15 percent hard, firm durinodes 10 to 20 millimeters thick; few thin silica coatings; common fine and medium filaments of gypsum; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 35 miles north of Elko, about 2,000 feet west and 1,400 feet south of the projected (unsurveyed) northwest corner of sec. 18, T. 38 N., R. 55 E.; north latitude of 41 degrees, 11 minutes, 19 seconds; west longitude of 115 degrees, 49 minutes, 16 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; moist in places from late October through early June

Soil temperature: 47 to 52 degrees F

Depth to weak continuous silica cementation: 19 to 30 inches

Depth to the base of the Bt horizon: 17 to 30 inches

Control section: Clay content—40 to 55 percent when mixed; content of rock fragments—5 to 35 percent pebbles when mixed

Other features: Gravelly substratum phases that have a variegated 2C horizon of very gravelly loam sand at a depth of 40 inches or more; 50 to 65 percent pebbles in the 2Cq horizon

A horizon:
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—weak or moderate very thin to very thick platy or subangular blocky
- Reaction—mildly alkaline or moderately alkaline

Bt1 horizon (if it occurs):
- Value—5 or 6 dry
- Chroma—2 or 3
- Structure—weak or moderate very fine to medium subangular blocky or prismatic
- Consistence—very friable or friable when moist; sticky or very sticky and plastic or very plastic when wet
- Reaction—mildly alkaline or moderately alkaline

Bt2, Bt3, Bt4, and Bt5 horizons:
Value—5 to 7 dry, 3 to 5 moist
Chroma—2 to 4 dry, 3 or 4 moist
Clay content—mainly 40 to 55 percent when mixed, but as much as 60 percent in some pedons
Content of rock fragments—5 to 35 percent pebbles when mixed
Structure—weak or moderate fine to coarse prismatic or very fine to medium angular blocky
Reaction—moderately alkaline or strongly alkaline
Other features—in some pedons slightly effervescent to strongly effervescent and common lime filaments in the lower part

Bqk and Cqk horizons:
Hue—10YR or 2.5Y
Value—6 to 8 dry, 4 to 6 moist
Chroma—1 to 4
Effervescence—slightly effervescent to violently effervescent
Reaction—moderately alkaline or strongly alkaline
Cementation—in some pedons thin weak discontinuous cementation in the Bqk horizon above the horizon with continuous cementation
Other features—relict mottles at a depth of more than 30 inches in many pedons

Woofus Series

The Woofus series consists of very deep, very poorly drained soils that formed in loamy alluvium over sandy alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on flood plains along streams. Slopes are 0 to 2 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 46 degrees F.

Taxonomic class: Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Fluvaquentic Haplaquolls

Typical pedon: Woofus silty clay loam, 0 to 2 percent slopes, in an area of the Devilsgait-Woofus-Devilsgait, gravelly substratum association:

A1—0 to 8 inches; gray (10YR 5/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and medium roots; common fine and medium tubular pores; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (2 to 10 inches thick)

A2—8 to 16 inches; gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure; slightly hard, friable, sticky and plastic; few coarse and many medium and fine roots; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary. (6 to 14 inches thick)

AC—16 to 30 inches; light brownish gray (10YR 6/2) clay loam, very dark gray (10YR 3/1) moist; few distinct dark yellowish brown (10YR 4/4 moist) mottles; massive; slightly hard, friable, sticky and plastic; common fine and medium roots; few fine tubular pores; many irregularly shaped lime filaments and seams; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary. (3 to 28 inches thick)

2C1—30 to 36 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; violently effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary. (5 to 30 inches thick)

3C2—36 to 60 inches; light brownish gray (10YR 6/2) coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; 10 percent pebbles; slightly effervescent; moderately alkaline (pH 8.0).

Type location: Elko County, Nevada; about 3 miles southwest of Elko, about 1,600 feet east and 2,400 feet south of the northwest corner of sec. 29, T. 34 N., R. 55 E.; north latitude of 40 degrees, 48 minutes, 13 seconds; west longitude of 115 degrees, 48 minutes, 26 seconds

Range in Characteristics

Soil moisture: Saturated at or near the surface for at least 1 month during most years, mainly from late winter to early summer
Soil temperature: 47 to 50 degrees F
Thickness of the mollic epipedon: 10 to 24 inches
Depth to the 2C horizon: 20 to 38 inches
Reaction: Mildly alkaline or moderately alkaline
Effervescence: Between depths of 10 and 20 inches, slightly effervescent to violently effervescent; commonly effervescent throughout
Control section: Clay content—20 to 30 percent in the upper part and 0 to 5 percent in the lower part; texture—stratified loam to silty clay loam in the upper part and stratified loamy fine sand to gravelly coarse sand in the lower part; content of rock fragments—0 to 10 percent in the upper part and 0 to 40 percent in the lower part
Other features: A buried A horizon in some pedons

A horizon:
Value—4 or 5 dry, 2 or 3 moist

Chroma—1 or 2
Other features—above the 2C horizon in some pedons, a horizon of fine sandy loam or sandy loam less than 5 inches thick

AC horizon:
Secondary carbonates—none to many
Mottles—few or common

2C horizon:
Value—5 to 7 dry, 4 or 5 moist
Chroma—1 to 3
Texture—stratified loamy fine sand to gravelly coarse sand
Clay content—0 to 5 percent
Content of rock fragments—0 to 30 percent
Structure—massive or single grain
Mottles—none to many

Yuko Series

The Yuko series consists of very shallow and shallow, well drained soils that formed in residuum derived from tuff and tuffaceous sandstone. These soils are on the side slopes of hills and in rock-core areas of fan piedmont remnants. Slopes are 4 to 50 percent. The mean annual precipitation is about 10 inches, and the mean annual temperature is about 47 degrees F.

Taxonomic class: Loamy, mixed, mesic, shallow Xerollic Haplargids

Typical pedon: Yuko very gravelly coarse sandy loam, 30 to 50 percent slopes, in an area of the Cherry Spring-Orovada-Yuko association:

A—0 to 2 inches; pale brown (10YR 6/3) very gravelly coarse sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine interstitial pores; 40 percent pebbles; neutral (pH 7.2); clear smooth boundary. (2 to 6 inches thick)

Bt1—2 to 6 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine roots; many very fine interstitial pores; common thin clay films on faces of peds; 5 percent pebbles; neutral (pH 7.0); clear wavy boundary. (3 to 6 inches thick)

Bt2—6 to 8 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure; very hard, firm, very sticky and very plastic; common very fine and few medium roots; common very fine interstitial pores; many moderately thick clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.4); abrupt wavy boundary. (0 to 2 inches thick)

Cr—8 to 42 inches; very pale brown (10YR 7/4), weathered tuff; few very fine roots extending into fractures; lime coating on fracture planes.

Type location: Elko County, Nevada; about 11 miles north of Carlin, about 1,600 feet east and 1,200 feet south of the northwest corner of sec. 8, T. 34 N., R. 53 E.; north latitude of 40 degrees, 52 minutes, 13 seconds; west longitude of 116 degrees, 02 minutes, 22 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from June through October, moist in places in winter and spring
Soil temperature: 47 to 52 degrees F
Depth to paralithic contact: 6 to 14 inches
Control section: Clay content—averages 27 to 35 percent; content of rock fragments—averages 10 to 15 percent, mainly pebbles and cobbles; sand fraction—less than 45 percent

A horizon:
Value—4 to 6 dry, 3 or 4 moist
Chroma—2 or 3
Reaction—slightly acid or neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6 dry, 3 or 4 moist
Chroma—3 to 6 dry or moist
Texture—dominantly silty clay loam or clay loam; clay 1 to 4 inches thick in part of the horizon in some pedons
Clay content—averages 30 to 40 percent
Content of rock fragments—averages 5 to 15 percent
Reaction—slightly acid to moderately alkaline

Zevadez Series

The Zevadez series consists of very deep, well drained soils that formed in alluvium derived from mixed rock sources and a component of loess and volcanic ash. These soils are on fan piedmont remnants, hills, and plateaus. Slopes are 4 to 50 percent. The mean annual precipitation is about 9 inches, and the mean annual temperature is about 48 degrees F.

Taxonomic class: Fine-loamy, mixed, mesic Durixerollic Haplargids

Typical pedon: Zevadez fine sandy loam, 4 to 15 percent slopes, in an area of the Zevadez-Puett-Puett, steep association:

A1—0 to 3 inches; light gray (10YR 7/2) fine sandy loam, dark brown (10YR 3/3) moist; weak very thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; neutral (pH 7.2); abrupt wavy boundary. (2 to 4 inches thick)

A2—3 to 5 inches; light gray (10YR 7/2) fine sandy loam, dark brown (10YR 3/3) moist; moderate very thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine interstitial pores; neutral (pH 7.2); abrupt wavy boundary. (2 to 7 inches thick)

Bt1—5 to 11 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak very fine and fine subangular blocky structure; slightly hard, very friable, sticky and plastic; common very fine and fine and few medium and coarse roots; many very fine tubular pores; many thin clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.6); clear wavy boundary. (6 to 14 inches thick)

Bt2—11 to 16 inches; very pale brown (10YR 7/3) sandy clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; many very fine tubular pores; common thin clay films on faces of peds and lining pores; 5 percent pebbles; mildly alkaline (pH 7.8); clear wavy boundary. (0 to 5 inches thick)

Bq—16 to 33 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; massive; very hard, firm, brittle, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; weak continuous silica cementation; 30 percent durinodes 10 to 20 millimeters thick; 5 percent pebbles; moderately alkaline (pH 8.0); clear irregular boundary. (5 to 20 inches thick)

Bqk1—33 to 44 inches; white (10YR 8/2) loamy fine sand, brown (10YR 4/3) moist; massive; hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; 35 percent hard, firm durinodes 10 to 30 millimeters thick; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary. (0 to 15 inches thick)

Bqk2—44 to 62 inches; white (10YR 8/2) loamy sand, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 20 percent durinodes 10 to 20 millimeters thick; 7 percent pebbles; strongly effervescent; moderately alkaline (pH 8.4).

Type location: Elko County, Nevada; about 14 miles northeast of Elko, near Ryndon, about 100 feet north and 1,400 feet east of the southwest corner of sec. 24, T. 36 N., R. 56 E.; north latitude of 40 degrees, 59 minutes, 08 seconds; west longitude of 115 degrees, 36 minutes, 55 seconds

Range in Characteristics

Soil moisture: Usually dry when the soil temperature is above 41 degrees F; dry from early June through November, moist in places in winter and spring

Soil temperature: 47 to 52 degrees F

Depth to the base of the argillic horizon and to continuous silica cementation: 12 to 20 inches

Depth to carbonates: 24 to 36 inches

Control section: Clay content—averages 20 to 30 percent; content of rock fragments—0 to 15 percent

A horizon:
- Value—5 to 7 dry, 3 or 4 moist; averages lighter than 5.5 dry when the upper 7 inches is mixed
- Chroma—2 or 3
- Structure—platy in the upper part and platy or subangular blocky in the lower part
- Consistence—soft or slightly hard when dry
- Reaction—neutral to moderately alkaline

Bt horizon:
- Value—6 or 7 dry
- Chroma—2 to 4
- Texture—sandy clay loam, clay loam, or loam
- Clay content—20 to 30 percent
- Content of rock fragments—0 to 15 percent
- Structure—subangular or angular blocky
- Reaction—mildly alkaline or moderately alkaline

Bq horizon:
- Value—6 or 7 dry, 4 or 5 moist
- Chroma—3 or 4 moist
- Texture—mainly fine sandy loam or very fine sandy loam; clay loam in some pedons
- Clay content—12 to 18 percent
- Content of rock fragments—0 to 15 percent, mainly pebbles
- Structure—mainly massive; platy or subangular blocky in some pedons
- Consistence—hard or very hard when dry; slightly sticky or sticky and slightly plastic or plastic when wet
- Cementation—weak continuous silica cementation and as much as 40 percent durinodes in a firm and brittle matrix

Bqk horizon:
- Hue—10YR or 2.5Y

Value—6 to 8 dry, 4 or 5 moist
Chroma—2 to 4
Texture—loamy sand, loamy fine sand, fine sandy loam, or very fine sandy loam
Clay content—8 to 12 percent
Content of rock fragments—0 to 15 percent, mainly pebbles
Consistence—slightly hard to very hard when dry; friable or firm when moist
Reaction—mildly alkaline or moderate alkaline
Effervescence—slightly effervescent to strongly effervescent
Other features—20 to 60 percent durinodes in a friable matrix or weak continuous silica cementation

Formation of the Soils

Soil is a natural, three-dimensional body on the earth's surface. It is capable of supporting plants. It is a mixture of varying proportions of rocks, minerals, organic matter, water, and air. The rocks and minerals are fragmented and partly or wholly weathered. Soils have distinct layers, or horizons, that are the product of environmental forces acting upon material deposited or accumulated through geologic activity.

Soils differ from one another in different localities and within short distances. These differences are the result of the interaction of five soil-forming factors. The factors are climate, mainly temperature and precipitation; relief; biological forces, mainly the plant cover and the organisms living in and on the soil; parent material, including its texture and structure and its mineralogical and chemical composition; and the length of time that the soil-forming forces have been active.

The landscape in this survey the area consists mainly of mountains and valleys that are the result of geologic stratigraphic and structural control. The present topography and landforms, however, are primarily the result of Quaternary events. The kinds of soil that formed indicate the stability and age of the surfaces of the landforms on which they occur.

Climate

The climate of the survey area is characterized by warm, dry summers and cool, moist winters. The average annual precipitation ranges from about 9 inches at the lowest elevations of the valleys to about 16 inches or more at the highest elevations in the Pinyon Range, the Adobe Range, and the Independence Mountains. The average annual air temperature ranges from about 48 degrees F at the lower elevations to about 41 degrees F or lower in some of the high mountain ranges. Major climatic variations are the result of the effects of topography and relief. Temperature decreases with increasing elevation. Precipitation increases with increasing elevation and is most abundant in the mountainous areas.

The valleys in the survey area are at an elevation of 5,100 to 6,500 feet and have an average annual precipitation of 8 to 12 inches. With increasing elevation, there is an accompanying increase in precipitation, which results in deeper leaching of salts and calcium carbonate, increased acidity, changes in the kind and density of vegetation, and a thicker and darker surface layer. Xerollic Durorthids (Chiara series) and Durixerollic Camborthids (Enko and Orovada series) are examples of soils that formed at the lower elevations where the annual precipitation is about 10 inches. Aridic Durixerolls (Stampede series) and Abruptic Aridic Durixerolls (Donna series) are examples of soils that formed at the upper elevations in this zone.

At the highest elevations, up to about 8,700 feet, the annual precipitation is 12 inches to at least 16 inches. Leaching of salts and carbonates is more intensive. The soils are neutral or slightly acid and have a thick surface layer that is high in organic matter content. Aridic Haploxerolls (Loncan series), Pachic Cryoborolls (Hapgood series), and Argic Pachic Cryoborolls (Tusel series) are typical of these soils.

In winter freezing and thawing occur throughout most of the survey area, except for areas that generally are insulated by a snow cover. The effects of frost action are evidenced by the heaving of plants, the development of miniature stone rings, and erosion of the surface soil. At some of the higher elevations, freezing and thawing have fractured and displaced bedrock.

Relief

Through its effects on drainage, runoff, erosion, and exposure to the sun and wind, relief has had an important effect on soil formation in this survey area. The mountain ranges, valleys, and flood plains reflect the gross variations in relief within the area.

The mountain ranges are characterized mainly by strong relief. Runoff is rapid or very rapid, and the hazard of erosion is high. The removal of material by erosion inhibits or prevents soil formation. The development of soils on unstable mountain surfaces that are subject to rapid geologic erosion is limited primarily to the formation of a dark surface layer through the accumulation of organic matter. A cambic horizon or an argillic horizon has formed in soils on the

more stable mountain surfaces where the rate of geologic erosion has been slower. Lithic Xerollic Haplargids (Soughe series) and Aridic Argixerolls (Sumine series) are examples of soils that formed on the more stable mountain slopes and have an argillic horizon. Typic Calcixerolls (Cavehill series) are examples of soils that have a calcic horizon. Lithic Haploxerolls (Gando series) are examples of soils on the less stable mountain slopes where the forces of soil formation have been unable to act on the parent material long enough for the development of a calcic or argillic horizon.

Soils on concave and north-facing mountain slopes commonly have snow pockets that remain into late spring and early summer. The effect of temperature and moisture is enhanced in these areas, resulting in dense stands of shrubs and grass. The soils in these areas have a thick, dark surface layer with a high content of organic matter. Pachic Cryoborolls (Hapgood series) are examples of these soils.

The valleys in the survey area are essentially semibolsons that receive drainage water primarily from the surrounding mountain ranges *(16)*. The valleys are characterized by a series of level or nearly level basin floors consisting of flood plains bordered by a piedmont slope of fan skirts and fan piedmonts. The floors consist of Quaternary valley fill and Tertiary tuffaceous sedimentary rocks *(8, 10)*.

Stream erosion in the valleys has dissected the valley fill and tuffaceous sedimentary rocks. Downcutting of the valleys has been interrupted several times, and these events are marked by the development of fan piedmonts. Dissection in some of these areas has resulted in fan piedmont remnant summits and side slopes with inset fans and flood plains along drainageways. The fan piedmont areas have been relatively stable over a long period as a result of the bypassing of drainage water from hills and mountains through dissecting channels. Xerollic Durorthids (Chiara series), Xerollic Durargids (Hunnton series), and Aridic Durixerolls (Stampede series) are examples of soils on stable fan piedmonts. Durixerollic Camborthids (Enko and Orovada series) and drained Cumulic Haplaquolls (Welch series) are examples of soils on inset fans and flood plains.

The level and nearly level alluvial flats and lower flood plains are in areas that have accumulated soluble salts. Runoff is slow, and drainage is somewhat restricted. The soils in this area are light colored and contain soluble salts. Aeric Halaquepts (Ocala series) are examples of soils that formed in this area.

The nearly level flood plains in the survey area have a high water table. Runoff is very slow, and some of the soils are subject to flooding. The soils in these areas support dense stands of meadow vegetation, which has contributed a large amount of organic matter to the soils, producing a dark surface layer. Cumulic Haplaquolls (Devilsgait and Welch series) are examples of these soils. In some areas where stream channel entrenchment is common, the water table is at a greater depth. The soils in these areas support basin big sagebrush and basin wildrye. Where irrigated, they support good stands of meadow vegetation. These soils also have a dark surface layer. The drained Cumulic Haplaquolls (Devilsgait series) along the North Fork of the Humboldt River are examples of soils on flood plains where channel entrenchment is common.

Biological Forces

Plants, animals, insects, and microflora are important biological forces that affect soil formation in the survey area. Animals, such as badgers and ground squirrels, and insects, such as cicadas, have had some effect on soil development, although plants appear to have been the most important of the biological forces. The vegetation in the survey area has been a particularly important factor in reducing the hazard of erosion. It has helped to maintain the stability of the land surfaces so that soil formation can take place.

Because of climatic differences, the kinds and amounts of plants vary considerably at the different elevations in the survey area. In areas on flood plains where drainage is restricted, the dense growth of meadow vegetation has supplied the organic matter that gives the Cumulic Haplaquolls (Devilsgait and Welch series) and Fluvaquentic Haplaquolls (Woofus series) a thick, dark surface layer.

On alluvial flats and fan skirts at low elevations, the main plants are salt-tolerant shrubs and grasses. Because of the salinity of these soils, plants cover only a small part of the surface. Therefore, very little organic matter is added to the soil and the sparse plants and scarce litter provide little protection from the wind and sun. Commonly, plants are sparse and litter is scarce on the Aeric Halaquepts (Ocala series) and Durorthidic Torriorthents (Moranch series). Salt-tolerant shrubs tend to recycle salts from the deeper layers to the surface layer.

The piedmonts and hills at the higher elevations support a plant cover of shrubs and grasses that is transitional from desert shrubs. Compared to the lower elevations, the density of plants is somewhat greater and soluble salts are deeper in the soils. The surface layer of these soils has slight or moderate amounts of organic matter, depending on soil stability. Xerollic Durargids (Hunnton series) and Lithic Xerollic Haplargids (Soughe series) are typical of these soils.

The mountainous areas support dense stands of shrubs, grasses, and, in places, trees. Because of the more abundant vegetation, the surface layer of most of the soils, such as the Pachic Argixerolls (Bullump series), is thick, high in organic matter content, and dark.

Parent Material

Parent material is the weathered rock or unconsolidated material in which soils form. The hardness, grain size, and porosity of the parent material and its mineralogical and chemical composition greatly influence soil formation. The main kinds of parent material in this survey area are residuum derived from intrusive and extrusive igneous rocks and from sedimentary rocks, colluvium, alluvium, lacustrine sediments, and eolian material, including loess and volcanic ash.

The igneous rocks are mainly rhyolite, basalt, welded tuff, and andesite. They have appreciable quantities of minerals that weather to clay. The more siliceous rock, particularly tuff, is a source of silica for the cementation of soil horizons. Because of the tendency of material derived from volcanic rocks to produce clay upon weathering, most soils that formed in this material and that are on sufficiently stable landforms for long periods have an argillic horizon. Aridic Argixerolls (Sumine and Cotant series), Lithic Argixerolls (Cleavage series), and Lithic Xerollic Haplargids (Soughe series) are examples of these soils.

Colluvium has accumulated on steep mountain slopes as a result of gravitational forces. The colluvium generally is poorly sorted, has many rock fragments, and includes minerals that weather to clay. Many of the colluvial landscapes have not been stable long enough for the formation of an argillic horizon in the soils. The Pachic Cryoborolls (Hapgood and Hackwood series) are examples of colluvial soils.

Ordovician through Triassic sedimentary rocks are in mountains and on hills throughout the survey area. The bedrock consists of relatively thick sequences of chert, shale, siltstone, sandstone, quartzite, conglomerate, and limestone. Typic Calcixerolls (Cavehill series) are examples of soils that have a developed calcic horizon. Lithic Xeric Torriorthents (Hopeka series) are examples of shallow, undeveloped soils on unstable land surfaces where an argillic horizon has not formed.

Late Tertiary sedimentary rocks are in valleys and on hills throughout the survey area. The bedrock consists primarily of older alluvium and lakebed deposits containing interbedded tuffaceous shale, tuffaceous sandstone, siltstone, and mudstone. Xeric Torriorthents (Puett and Perwick series) are examples of shallow and moderately deep, undeveloped soils on unstable surfaces where soil formation is minimal.

Alluvium deposited on fan piedmonts, inset fans, fan skirts, alluvial flats, and flood plains consists of sandy, loamy, and clayey material of generally mixed mineralogy. It has eroded from the surrounding hills and mountains.

The alluvium deposited from mixed rock sources on fan piedmonts and fan skirts is mostly loamy or silty and generally contains pebbles, cobbles, and stones. It is porous and contains minerals that weather to clay and soluble silica for cementation of duripans. Durixerollic Haplargids (Wieland series) and Xerollic Durargids (Hunnton series) are examples of soils that are characterized by an argillic horizon and silica cementation and are on stable fan piedmonts. Durixerollic Camborthids (Kelk series) are examples of soils that are characterized by a cambic horizon and some silica cementation and are on inset fans, fan skirts, and the side slopes of fan piedmonts.

Alluvium deposited below the fan piedmonts as fan skirts, alluvial flats, and flood plains consists of sandy, silty, and clayey material. Soluble salts are common in some areas. Although the material contains weatherable minerals, the soils are young and do not exhibit soil development. Aeric Halaquepts (Ocala series) and Cumulic Haplaquolls (Devilsgait series) are examples of these soils.

Volcanic ash and eolian material, presumed to be from Mount Mazama ash falls, have been a major source of the silica that forms the durinodes and duripans in many of the soils in the survey area. Durixerollic Camborthids (Kelk series) on fan skirts and inset fans and Aeric Halaquepts (Ocala series) on alluvial flats and flood plains are examples of these soils.

Time

Time is required for the formation of soil horizons. The amount of time required depends on the other soil-forming factors. The thickness and other characteristics of the A and B horizons reflect the relative age of the soil. The age or strength of expression of the soil horizons reflects the amount of weathering in the parent material. The weathering results from the interaction of moisture, temperature, and biological activity as influenced by time.

The soils in this survey area range from a few years to possibly a few hundred thousand years old. This range is a major reason for the many kinds of soil in the area.

Many soil scientists and some geologists believe that weathering of the parent material and soil profile

development have been essentially continuous, their rates having changed little throughout Quaternary time *(14, 15, 19, 23)*. Recently, geologists concerned with differentiating Quarternary deposits have proposed that soil formation has not proceeded continuously at the same rate but has occurred intermittently at rapid rates *(11, 12, 13, 17)*. These geologists have developed a technique of mapping soil stratigraphic units in which weathering profiles are used as stratigraphic markers to differentiate and correlate Quarternary deposits. The concept of soil formation is based on the assumption that weathering profiles formed in response to infrequent combinations of climatic factors that induced minimal erosion and deposition and a greatly accelerated rate of chemical weathering.

Although scientists disagree as to the relative influence of time and the other soil-forming factors, the concept of intermittent periods of soil formation has been supported by numerous studies. It provides a practical means of relating the age of the soils in this survey area to geologic and climatic factors in the Quaternary. For the purposes of this discussion, time-stratigraphic names will be those set forth by Birkeland *(3)*. These are Holocene (0-10,000 years old), late Wisconsin (10,000-30,000 years old), middle Wisconsin (30,000-40,000 years old), early Wisconsin (40,000-130,000 years old), and pre-Wisconsin (more than 130,000 years old).

The kinds of diagnostic subsurface horizons, other diagnostic subsurface properties, and their strength of expression provide general clues to the age of the soils in the survey area *(21)*. The important diagnostic subsurface horizons in the soils are argillic, natric, and cambic horizons and horizons exhibiting silica cementation.

Prominent argillic horizons in this survey area generally occur only in soils that formed primarily during the Wisconsin and pre-Wisconsin periods. This concept has been established in studies of the Southwest *(5, 6)* and is further supported in "Soil Taxonomy" *(20)*. If soil-forming conditions remain constant, argillic horizons become finer textured with increasing age, become somewhat thicker, and tend to develop abrupt upper boundaries. Weakly expressed, thin argillic horizons may have formed in soils during very late Wisconsin or early Holocene time.

Natric horizons are special kinds of argillic horizons that formed under the influence of a high content of exchangeable sodium. The effect of sodium on the dispersion of clay may tend to accelerate the rate at which argillic horizons form. This acceleration is believed to be significant only in weakly expressed natric horizons that formed in soils on Holocene surfaces. Following the formation of argillic horizons, prominent natric horizons may have developed as a result of the sodium supplied by eolian deposits. This important present-day process affects the physical and chemical properties of the soils in the survey area.

The volcanic glass in sediment derived from pyroclastic material and in alluvial and eolian deposits of volcanic ash is a source of silica for the formation of duripans and durinodes in many of the soils in the survey area. Duripans are massive or platy horizons that are cemented with silica and, in most areas, with accessory carbonates. Massive duripans capped with silica and lime-cemented laminar layers are probably the oldest of the duripans in the survey area. They are of pre-Wisconsin age. Thin duripans that do not have overlying laminar layers, weak discontinuous silica cementation, or durinodes have apparently developed on Holocene surfaces, in loess or loamy alluvium generally deposited on gravelly material. These forms of silica cementation apparently are capable of forming during a relatively short period and are probably less than 7,000 years old.

The degree of development of diagnostic subsurface horizons in the soils of the survey area indicates a sequence that ranges in age from late Holocene to pre-Wisconsin.

The youngest soils in the survey area are those that formed in recently aggraded material or in material recently exposed by erosion. Included among these soils are shallow Xeric Torriorthents (Puett and Tuffo series) and moderately deep Xeric Torriorthents (Perwick series), which formed in Tertiary sediments on low hills where geologic erosion has been active.

Somewhat older than the youngest soils are soils that formed in alluvium on wet flood plains, slowly aggrading inset fans, or recently eroded mountain slopes. These soils have been stable long enough for the formation a dark surface layer through the accumulation of organic matter. They do not have an argillic, natric, cambic, or calcic horizon or a duripan or durinodes. They are probably less than about 1,000 years old. Fluvaquentic Haplaquolls (Woofus series) are examples of soils that formed on wet flood plains. Aridic Haploxerolls (Loncan series) and Lithic Haploxerolls (Gando series) are examples of soils that formed on mountain slopes.

Soils that formed in alluvium and have subsurface horizons containing durinodes or horizons with very weak silica cementation are older than the youngest soils in the survey area and possibly are slightly older than the soils that have a dark surface layer as their only diagnostic feature. These older soils are on alluvial flats, flood plains, and fan skirts. They formed in saline- and alkali-affected parent material containing appreciable amounts of volcanic ash. The volcanic ash

as a source of soluble silica, along with the alkaline reaction, probably contributes to a relatively rapid formation of durinodes and incipient silica cementation. Aeric Halaquepts (Ocala series) and Durorthidic Torriorthents (Moranch series) are examples of soils that have horizons with incipient silica cementation.

Stable Holocene land surfaces less than 10,000 and more than 2,000 years old are extensive in the survey area. The soils that formed on these surfaces have a cambic horizon. Cambic horizons in the soils of the survey area formed for the most part in calcareous sediment. Original stratification is not evident, and carbonates have been removed and redeposited in underlying horizons. Investigations in southern New Mexico indicate that cambic horizons in that region are less than about 5,000 years old *(4, 7)*. Cambic horizons in the survey area and in other areas in Nevada generally have been thought to be less than 10,000 years old and possibly less than 7,000 years old. This age has been determined mainly through soil mapping in areas below the last high stage of Pleistocene Lake Lahontan *(9, 11, 12, 13)*. Durixerollic Camborthids (Enko, Kelk, and Orovada series) are examples of soils that have a cambic horizon and are on fan piedmont remnants, inset fans, and fan skirts.

In some of the less stable areas, erosion stripped the landscape during the late Wisconsin period, exposing relict duripans. Following redeposition during the middle to early Holocene, loess and loamy alluvium derived from surrounding land surfaces covered these relict subsurface horizons to a shallow depth in the soils. Soil development of the surface alluvium is minimal. Xerollic Durorthids (Chiara, Bioya, and Peeko series) on fan piedmonts and partial ballenas are examples of these soils.

Soils that have a relict argillic horizon are believed to be of late Wisconsin to pre-Wisconsin age. These soils are extensive on mountains, hills, and fan piedmonts. The fact that extensive areas of these kinds of soil exist today is evidence that major erosional and depositional events have not taken place or that the events have been minor in extent since the late Pleistocene.

Stable land surfaces of early to late Wisconsin or middle Wisconsin age are extensive in the survey area. The soils on these surfaces have a dominantly fine-loamy or loamy-skeletal argillic horizon. Durixerollic Haplargids (Zevadez series) are examples of soils that have an argillic horizon and are on fan piedmonts. Lithic Xerollic Haplargids (Bregar series) are examples of soils that have an argillic horizon and are on hills and mountain slopes. Aridic Argixerolls (Sumine series) are examples of soils that have an argillic horizon and are on mountain slopes.

During the early to late Wisconsin or middle Wisconsin period, a thin or moderately thick duripan formed in some soils that have an argillic horizon and are on the older landscapes. Haploxerollic Durargids (Cherry Spring series) on fan piedmonts are examples of these soils.

Stable land surfaces of early Wisconsin or early and middle Wisconsin age are extensive in the survey area. The soils on these surfaces have a well developed, fine textured argillic or natric horizon. They are on the older stable land surfaces where the original subsurface horizons have been neither stripped by erosion nor deeply buried by sediment. Aridic Durixerolls (Stampede series) and Xerollic Durargids (Hunnton series) on fan piedmonts and Aridic Argixerolls (Lerrow series) on mountain slopes are examples of these soils.

Stable land surfaces of very early Wisconsin and pre-Wisconsin age are moderately extensive in the survey area. These surfaces are relatively stable, deeply dissected, and have fine and very fine textured soils with an argillic horizon that has an abrupt upper boundary. Because of these characteristics, the soils are considered to be the oldest in the survey area. Abruptic Aridic Durixerolls (Donna series) on fan piedmonts and Typic Palexerolls (Ebic series) on plateaus are examples of these soils.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted. (See Sodicity.)

Alluvial flat. The nearly level alluvial surface between a piedmont slope and the playa of a bolson or the axial stream flood plain of a semibolson. This landform can include both recent and relict components.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Back slope. The slope component that is the steepest, straight to concave or merely concave, middle portion of an erosional slope.

Ballena. A major landform comprising distinctively round-topped ridge line remnants of fan alluvium. The broadly rounded shoulders of the ridge meet from either side to form a narrow crest and merge smoothly with the concave back slopes. In ideal examples, the slightly concave foot slopes of adjacent ballenas merge to form a smoothly rounded drainageway.

Basal area. The area of a cross section of a tree. It is a measure of stand density, commonly expressed in square feet. For pinyon pine and juniper stands, it is the section at a height of 1 foot and is measured outside the bark.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Basin. A general term for an intermontane basin, a bolson, a semibolson, an area of centripetal drainage, or a structural depression.

Basin floor. The lowermost, nearly level major physiographic part of a bolson or semibolson. It includes all alluvial, eolian, and erosional landforms that are below the piedmont slopes.

Basin-floor remnant. A generally flat-topped erosional remnant of a basin floor that has been dissected by an axial stream.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Channel. The bed of a single or braided waterway that commonly is barren of vegetation. Channels form in young alluvium. They may be enclosed by banks, or they may be splayed across a fan surface and slightly mounded above it. They may

include bars and dumps of cobbles and stones. Except for flood plain playas, channels are landform elements.

Chemical treatment. Control of unwanted vegetation by use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay skin. See Clay film.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that contains a specified amount of rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. The amount of these fragments, by volume, is expressed as:

Cobbly	15 to 35 percent
Very cobbly	35 to 60 percent
Extremely cobbly	more than 60 percent

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Component landform. A feature of the earth's surface that is part of a major landform and was created by partial dissection of the major landform or by alluvial or eolian accretion. A component landform is the smallest type of landform that can be described as a single unit. Its morphological parts are called landform elements. A side slope element can be subdivided into slope components.

Conglomerate. A coarse grained, clastic rock composed of rounded to subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, soil-improving crops and practices more than offset the effects of soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—Readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—Adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crest. The slope component comprising a very narrow, commonly linear top of an erosional ridge, hill, mountain, or other landform.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil. Crop residue management helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial

saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of some field crops are adversely affected unless artificial drainage is provided. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted unless artificial drainage is provided. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops (except for rice) unless a drainage system is installed.

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Effervescence. The quality of a soil measured when drops of diluted (1:10) hydrochloric acid (HCl) are added to the soil. The ratings are as follows:

Very slightly effervescent	few bubbles
Slightly effervescent	bubbles readily
Strongly effervescent	bubbles form low foam
Violently effervescent	bubbles form thick foam quickly

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fan piedmont. The most extensive major landform of most piedmont slopes. It is formed by the lateral coalescence of mountain-front alluvial fans into one generally smooth slope and by accretion of fan aprons. Fan piedmonts commonly are complexes of many component landforms.

Fan remnant. A generic term for a component landform that is the remainder of various older fans that have been dissected (erosional fan remnants) or partially buried (nonburied fan remnants). Erosional fan remnants have a flattish summit that consists of a relict fan surface; nonburied fan remnants consist entirely of a relict fan surface.

Fan remnant side slope. A landform element

comprised of the relatively young erosional slope around the sides of an erosional fan remnant. It is composed of shoulders, back slopes, and foot slopes.

Fan skirt. A major landform comprised of laterally coalescing, small alluvial fans that originate from gullies that are cut into or extend from the inset fan of a fan piedmont and merge along their toe slopes with the basin floor. Fan skirts are smooth or only slightly dissected.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. The transversely level floor of an axial stream of a semibolson or of a major desert stream valley that is occasionally or regularly alluviated when the stream overflows its channel during periods of flooding. Generally, a flood plain is a component of the basin floor.

Foot slope. The relatively gently sloping, slightly concave slope component of an erosional slope that is at the base of the back slope component. Synonym: pediment.

Forb. Any herbaceous plant not a grass or a sedge.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that contains a specified amount of rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter. The amount of these fragments, by volume, is expressed as:

Gravelly	15 to 35 percent
Very gravelly	35 to 60 percent
Extremely gravelly	more than 60 percent

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by silica or calcium carbonate.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, unconsolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors of predicting runoff. The four hydrologic groups are:

Group A.—Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively

drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B.—Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C.—Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D.—Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Inset fan. The flood plain of a commonly ephemeral stream that is confined between fan remnants, basin floor remnants, ballenas, or closely opposed fan toe slopes. Its transversely level cross section is evidence of alluviation of a fluve. It is wide enough that raw channels cover only a fraction of its surface.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Irrigation. Application of water to soils to assist in production of crops.

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landform element. The morphological part of a component landform. Side slope landform elements may be divided into slope components.

Leaching. The removal of soluble material from soil or other material by percolating water.

Light textured soil. Sand or loamy sand.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by the wind.

Major landform. A subdivision of the piedmont slope or basin floor major physiographic part that reflects a major morphogenetic process taking place over a long period or that is the result of a special erosional or depositional process. Many major landforms are dissected, and their original area is occupied by component landforms.

Major physiographic part. The very large part of an intermontane basin that is characterized by dominant slope and position and is comprised of major landforms (i.e., steeply sloping mountains that stand above less sloping piedmonts that in turn grade to nearly level basin floors).

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,*

more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides and a surface of considerably bare rock. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mountain-valley fan. A major landform that is the result of alluvial filling of a mountain valley or intermontane basin by coalescent valley-side slope fans, the toe slopes of which meet from either side of the valley along an axial drainageway. It is an extension of the upper piedmont slope into mountain valleys. Most mountain-valley fans have been dissected.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Observed rooting depth. The depth to which roots have been observed to penetrate.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan* and *claypan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pediment. The foot slope component of an erosional slope.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plain. A flat, undulating, or rolling area, large or small, that includes few prominent hills or valleys. It generally is at a low elevation in relation to surrounding areas, and it may have considerable overall slope and local relief.

Plateau. An extensive upland mass with a relatively flat summit area. It is considerably elevated (more than 100 meters) above adjacent lowlands and is separated from them on one or more sides by escarpments.

Piping. Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Burning an area under conditions of weather and soil moisture and at the time of day that will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

Profile, soil. A vertical section of the soil extending

through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Relict. Old, or remaining from previous times; in the present context, of Pleistocene age.

Relief. The elevations or inequalities of a land surface, considered collectively.

Remnant. The remainder of a larger landform or of a land surface that has been dissected or partially buried.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water. Six classes of runoff are recognized:

Ponded.—Little of the precipitation and runon escapes as runoff, and free water stands on the surface for significant periods. The amount of water that must be removed from ponded areas by movement through the soils, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs in level or nearly level depressional areas. The water depth may fluctuate greatly.

Very slow.—Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soils. Most of the water passes through the soils, is used by plants, or evaporates. The soils commonly are level or nearly level or are very open and porous.

Slow.—Surface water flows away slowly enough that free water stands on the surface for moderate periods or enters the soils rapidly. Most of the water passes through the soils, is used by plants, or evaporates. The soils commonly are nearly level or very gently sloping, or they are steeper but absorb precipitation very rapidly.

Medium.—Surface water flows away rapidly enough that free water stands on the surface for only short periods. Part of the precipitation enters the soils and is used by plants, is lost through evaporation, or moves into underground channels. The soils commonly are nearly level or gently sloping and absorb precipitation at a moderate rate, or they are steeper but absorb water rapidly.

Rapid.—Surface water flows away rapidly enough that the period of concentration is brief and free water does not stand on the surface. Only a small part of the water enters the soils. The soils are mainly moderately steep or steep, and they have a moderate to slow rate of absorption.

Very rapid.—Surface water flows away so rapidly that the period of concentration is very brief and free water does not stand on the surface. Only a small part of the water enters the soils. The soils

are mainly steep or very steep, and they absorb precipitation slowly.

Runon. Soil moisture received as runoff from adjacent areas.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium. The electrical conductivity of the saturation extract, expressed in millimhos per centimeter, is:

Nonsaline	0 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sand dune. A component landform made up of eolian, sand-sized mineral particles. Dunes commonly are on the leeward side of a Pleistocene lakebed.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Semibolson. An externally drained intermontane basin.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shoulder. The convex slope component at the top of an erosional side slope.

Side slope. The erosional slope around the sides of an erosional fan remnant, hill, ballena, mountain, or other landform. It is composed of shoulders, back slopes, foot slopes, and toe slopes. Also, the planimetrically linear parts of the slopes around a digitately dissected fan remnant or hill, or other landform, as compared with the planimetrically convex nose slope and concave head slope parts.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site. For pinyon pine and juniper stands, it is based on tree diameter at a height of 1 foot and the spacing between trees.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey the following slope classes are recognized:

Nearly level	0 to 2 percent
Gently sloping	2 to 4 percent
Moderately sloping	4 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 50 percent
Very steep	50 to 75 percent
Extremely steep	more than 75 percent

Slope component. A morphological element of an erosional slope and a morphological subdivision of the side slope landform element.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Nonsodic	less than 13
Slightly sodic	13 to 46
Strongly sodic	more than 46

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in

millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 6 to 15 inches (15 to 38 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony soil material. Material, commonly a subsurface layer, that contains a specified amount of rock fragments that are mainly 10 to 24 inches in diameter. The amount of these fragments, by volume, is expressed as:

Stony	15 to 35 percent
Very stony	35 to 60 percent
Extremely stony	more than 60 percent

Stream terrace. A transversely level erosional remnant of a former axial stream or major desert stream flood plain that slopes in the same direction as the adjacent, incised stream and is underlain by well sorted, stratified sand and gravel or by loamy or clayey sediment.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Summit. The flattish top of an erosional fan remnant, hill, mountain, or other landform. The term is used for both a landform element and a slope component.

Tailwater. In hydraulics, the water directly downstream from a dam or similar structure.

Talus. Rock fragments of any size or shape, commonly coarse and angular, derived from and lying at the base of a cliff or very steep, rock slope. The accumulated mass of such loose, broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Toe slope. The lowest part of a foot slope component of an erosional slope. It is distinguished from the upper part of a foot slope by a greater accumulation of pedisediment. Also, the lowest and most gently sloping part of a slope.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water-supplying capacity. The total amount of water available in the soil for plant growth in a normal year from precipitation, from runon, and from a capillary fringe minus runoff.

Water table. The upper level of ground water or that level below which the soil is saturated.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Appendix

Criteria Used in Rating Soils for Selected Uses

Roadfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Depth to rock.
3. Depth to cemented pan (inches)	>60	40-60	<40	Cemented pan.
4. Shrink-swell potential [1]	Low	Moderate	High, very high	Shrink-swell.
5. AASHTO group index number [1 2 3]	<5	5-8	>8	Low strength.
6. Layer thickness (inches)	>60	30-60	<30	Thin layer.
7. Fraction greater than 3 inches (percent by weight) [4]	<25	25-50	>50	Large stones.
8. Depth to high water table (feet)	>3	1-3	<1	Wetness.
9. Slope (percent)	<15	15-25	>25	Slope.

[1] Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

[2] If in kaolinitic family, rate one class better if experience confirms.

[3] GIN = (F-35)[.2 + .005(LL-40)] + .01 (F-15)(PI-10) where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

[4] Weighted average to 40 inches.

Topsoil

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>40	20-40	<20	Depth to rock.
3. Depth to cemented pan (inches)	>40	20-40	<20	Cemented pan.
4. Depth to bulk density greater than 1.8 g/cc (inches)	>40	20-40	<20	Area reclaim.
5. USDA texture [1]	---	LCOS, LS, LFS, LVFS	COS, S, FS, VFS	Too sandy.
6. USDA texture [1]	---	SCL, CL, SICL [2]	SIC, C, SC	Too clayey.
7. USDA texture [1]	---	---	FB, HM, SP, MPT, muck, peat, CE	Excess humus.
8. Fraction greater than 3 inches (percent by weight): [3]				
0 to 40 inches	<5	5-25	>25	Large stones.
40 to 60 inches	<15	15-30	>30	Area reclaim.
9. Coarse fragments (percent): [3]				
0 to 40 inches	<5	5-25	>25	Small stones.
40 to 60 inches	<25	25-50	>50	Area reclaim.
10. Salinity (mmhos/cm) [1]	<4	4-8	>8	Excess salt.
11. Layer thickness (inches)	>40	20-40	<20	Thin layer.
12. Depth to high water table (feet)	---	---	<1	Wetness.
13. Sodium adsorption ratio in the upper 40 inches (great group or phase)	---	---	>12 (halic, natric, alkali phases)	Excess sodium.
14. Soil reaction (pH) [1]	---	---	<3.6	Too acid.
15. Slope (percent)	<8	8-15	>15	Slope.
16. Carbonates	---	---	(4)	Excess lime.

[1] Thickest layer between 0 and 40 inches.

[2] If soil contains more than 3 percent organic matter and has less than 35 percent clay, rate "Good."

[3] Sum (100 minus percent passing No. 10 sieve) and fraction greater than 3 inches. Use dominant condition for restrictive feature.

[4] If the amount of carbonate is so high that it restricts the growth of plants, rate "Poor—excess lime."

Daily Cover for Landfill

Property	Limits			Restrictive feature
	Good	Fair	Poor	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches)	>60	40-60	<40	Depth to rock.
3. Depth to cemented pan (inches)	>60	40-60	<40	Cemented pan.
4. Unified [1]	---	---	SP, SW, SP-SM, SW-SM, GP, GW, GP-GM, GW-GM	Seepage.
5. USDA texture [1 2 3]	---	CL, SICL, SC	SIC, C	Too clayey.
6. USDA texture [1]	---	LCOS, LS, LFS, VFS	S, FS, COS, SG	Too sandy.
7. Unified [1 2]	---	---	OL, OH, CH, MH	Hard to pack.
8. Coarse fragments (percent) [1 4]	<25	25-50	>50	Small stones.
9. Fraction greater than 3 inches (percent by weight) [1 4]	<25	25-50	>50	Large stones.
10. Slope (percent)	<8	8-15	>15	Slope.
11. Depth to high water table (feet)	--- >3.5	--- 1.5-3.5	+ <1.5	Ponding. Wetness.
12. Unified [1]	---	---	PT	Excess humus.
13. Layer thickness (inches)	>60	40-60	<40	Thin layer.
14. Soil reaction (pH) [1]	---	---	<3.6	Too acid.
15. Salinity in the upper 60 inches (mmhos/cm) [3]	---	---	>16	Excess salt.
16. Sodium adsorption ratio (great group) [1 3]	---	---	>12 (halic, natric, alkali phases)	Excess sodium.
17. Carbonates	---	---	(5)	Excess lime.

[1] Thickest layer between 10 and 60 inches.

[2] If in kaolinitic family, rate one class better if experience confirms.

[3] Disregard in all Aridisols except Salorthids and Aquic intergrades, all Aridic subgroups, and all Torri great groups of Entisols except Aquic.

[4] Sum (100 minus percent passing No. 10 sieve) and fraction greater than 3 inches. Use dominant condition for restrictive feature.

[5] If the amount of carbonate is so high that it restricts the growth of plants, rate "Poor—excess lime."

Shallow Excavations

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Depth to bedrock (inches):				
Hard	>60	40-60	<40	Depth to rock.
Soft	>40	20-40	<20	Depth to rock.
3. Depth to cemented pan (inches):				
Thick	>60	40-60	<40	Cemented pan.
Thin	>40	20-40	<20	Cemented pan.
4. USDA texture (20 to 60 inches)	---	SI [1]	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, G, SG	Cutbanks cave.
5. USDA texture (20 to 60 inches)	---	C, SIC	---	Too clayey.
6. Soil order	---	---	Vertisols	Cutbanks cave.
7. Bulk density (g/cc) (20 to 60 inches)	---	>1.8	---	Dense layer.
8. Unified (20 to 60 inches)	---	---	OL, OH, PT	Excess humus.
9. Fraction greater than 3 inches (percent by weight) [2]	<25	25-50	>50	Large stones.
10. Depth to high water table (feet)	---	---	+	Ponding.
	>6	2.5-6	0-2.5	Wetness.
11. Flooding	None, rare	Common	---	Flooding.
12. Slope (percent)	0-8	8-15	>15	Slope.
13. Downslope movement	---	---	(3)	Slippage.

[1] In areas of loess, rating should be "Slight."
[2] Weighted average to 40 inches.
[3] If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

Local Roads and Streets

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Total subsidence	---	---	>12	Subsides.
3. Depth to bedrock (inches):				
Hard	>40	20-40	<20	Depth to rock.
Soft	>20	<20	---	Depth to rock.
4. Depth to cemented pan (inches):				
Thick	>40	20-40	<20	Cemented pan.
Thin	>20	<20	---	Cemented pan.
5. Shrink-swell potential [1]	Low	Moderate	High, very high	Shrink-swell.
6. AASHTO group index number [1 2 3]	<5	5-8	>8	Low strength.
7. Depth to high water table (feet)	---	---	+	Ponding.
	>2.5	1.0-2.5	<1.0	Wetness.
8. Slope (percent)	<8	8-15	>15	Slope.
9. Flooding	None	Rare	Common	Flooding.
10. Potential frost action	Low	Moderate	High	Frost action.
11. Fraction greater than 3 inches (percent by weight) [4]	<25	25-50	>50	Large stones.
12. Downslope movement	---	---	(5)	Slippage.
13. Formation of pits	---	---	(6)	Pitting.
14. Differential settling	---	---	(7)	Unstable fill.

[1] Thickest layer between 10 and 40 inches.

[2] GIN = (F-35)[.2 + .005(LL-40)] + .01 (F-15)(PI-10) where F = percent passing No. 200 sieve. If F is <35 and PI is >11, use only part 2 of equation. Use median values.

[3] If in kaolinitic family, rate one class better if experience confirms.

[4] Weighted average to 40 inches.

[5] If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

[6] If the soil is susceptible to the formation of pits caused by the melting of ground ice when the ground cover is removed, rate "Severe—pitting."

[7] If the soil is susceptible to differential settling, rate "Severe—unstable fill."

Pond Reservoir Areas

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Permeability between 20 and 60 inches (inches/hour)	<0.6	0.6-2.0	>2.0	Seepage.
3. Depth to bedrock (inches)	>60	20-60	<20	Depth to rock.
4. Depth to cemented pan (inches)	>60	20-60	<20	Cemented pan.
5. Slope (percent)	<3	3-8	>8	Slope.
6. USDA texture (all depths)	---	---	Marl, gyp	Seepage.
7. Downslope movement	---	---	(1)	Slippage.
8. Formation of pits	---	---	(2)	Pitting.

[1] If the soil is susceptible to movement downslope when loaded, excavated, or wet, rate "Severe—slippage."

[2] If the soil is susceptible to the formation of pits caused by the melting of ground ice when the surface cover is removed, rate "Severe—pitting."

Embankments, Dikes, and Levees

Property	Limits			Restrictive feature
	Slight	Moderate	Severe	
1. USDA texture	---	---	Ice	Permafrost.
2. Layer thickness (inches)	>60	30-60	<30	Thin layer.
3. Unified [1]	---	---	GW, GP, SW, SP, GW-GM, GP-GM, SW-SM, SP-SM, SM, [2] GM [2]	Seepage.
4. Unified [1]	---	GM, [3] CL [4]	ML, [5] SM, [6] SP, [6] CL-ML	Piping.
5. Unified [1]	---	---	PT, OL, OH	Excess humus.
6. Unified [1]	---	---	MH, CH [7]	Hard to pack.
7. Fraction greater than 3 inches (percent by weight) [8]	<15	15-35	>35	Large stones.
8. Depth to high water table (feet)	---	---	+	Ponding.
Apparent	>4	2-4	<2	Wetness.
Perched	>3	1-3	<1	Wetness.
9. Sodium adsorption ratio (0 to 40 inches) or great group or phase	---	---	>12 (natric, halic, alkali phases)	Excess sodium.
10. Salinity (mmhos/cm) (any depth)	<8	8-16	>16	Excess salt.

[1] Thickest layer between 10 and 60 inches.

[2] Rate "Moderate" if more than 20 percent passing No. 200 sieve and "Slight" if more than 30 percent passing No. 200 sieve.

[3] Rate "Slight" if less than 35 percent passing No. 200 sieve, less than 50 percent passing No. 40 sieve, and less than 65 percent passing No. 10 sieve. The soil must meet all three criteria before it is rated "Slight."

[4] Rate "Slight" if PI is greater than 15.

[5] Rate "Moderate" of PI is greater than 10.

[6] Rate "Moderate" if less than 70 percent passing No. 40 sieve and less than 90 percent passing No. 10 sieve, and rate "Slight" if less than 60 percent passing No. 40 sieve and less than 75 percent passing No. 10 sieve.

[7] Rate "Moderate" if PI is less than 40.

[8] Weighted average to 40 inches.

Sand

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. USDA texture	---	Ice	Permafrost.
2. Unified [1]	SW, SP, SW-SM, SP-SM	---	---
	GW, [2] GP, [2] GW-GM, [2] GP-GM [2]	---	---
	---	GW, [3] GP, [3] GW-GM, [3] GP-GM [3]	Small stones.
	---	Pt	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	---	<36	Thin layer.
	>36	---	---
4. Fraction greater than 3 inches (percent by weight) [4]	---	>50	Large stones.
	<50	---	---

[1] Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

[2] Percent passing No. 4 sieve minus percent passing No. 200 sieve is greater than 25.

[3] Percent passing No. 4 sieve minus percent passing No. 200 sieve is less than 25.

[4] Thickest layer between 10 and 60 inches.

Gravel

Property	Limits		Restrictive feature
	Probable source	Improbable source	
1. USDA texture	---	Ice	Permafrost.
2. Unified [1]	GW, GP, GW-GM, GP-GM	---	---
	SW, [2] SP, [2] SW-SM, [2] SP-SM [2]	SW, [3] SP, [3] SW-SM, [3] SP-SM [3]	Too sandy.
	---	Pt	Excess humus.
	---	All other	Excess fines.
3. Layer thickness (inches)	---	<36	Thin layer.
	>36	---	---
4. Fraction greater than 3 inches (percent by weight) [4]	---	>50	Large stones.
	<50	---	---

[1] Evaluate the thickest layer between 10 and 60 inches and also the bottom layer. Choose the best rating. When rating is based on bottom layer, verify thickness.

[2] 100 minus percent passing No. 4 sieve is greater than 25.

[3] 100 minus percent passing No. 4 sieve is less than 25.

[4] Thickest layer between 10 and 60 inches.

Drainage

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Depth to high water table (feet) [1]	>3 [2] +	Deep to water. Ponding.
3. Permeability in the upper 40 inches (inches/hour)	<0.2	Percs slowly.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Flooding	Common	Flooding.
7. Total subsidence	Any entry	Subsides.
8. Fraction greater than 3 inches (percent by weight) [3]	>25	Large stones.
9. Potential frost action	High	Frost action.
10. Slope (percent)	>3	Slope.
11. USDA texture [3]	COS, S, FS, VFS, LCOS, LS, LFS, LVFS, SG, G	Cutbanks cave.
12. Salinity (mmhos/cm) (any depth)	>8	Excess salt.
13. Sodium adsorption ratio (0 to 40 inches) or great group or phase	>12 (natric, halic, alkali phases)	Excess sodium.
14. Sulfidic materials (great group)	Sulfaquents, Sulfihemists	Excess sulfur.
15. Soil reaction (pH) (any depth)	<3.6	Too acid.
16. Downslope movement	(4)	Slippage.
17. Complex landscape	(5)	Complex slope.
18. Availability of outlets	(6)	Poor outlets.

[1] If "Deep to water," disregard other properties.
[2] If irrigated, consider other restrictive features if the water table is between 3 and 5 feet.
[3] Thickest layer between 10 and 60 inches.
[4] If the soil is susceptible to movement downslope when loaded, excavated, or wet, list "Slippage" as a restrictive feature.
[5] If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.
[6] If good outlets are difficult to find, list "Poor outlets" as a restrictive feature.

Irrigation

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Slope (percent)	>3	Slope.
3. Fraction greater than 3 inches (percent by weight) [1]	>25	Large stones.
4. Depth to high water table (feet)	+ <3 [2]	Ponding. Wetness.
5. Available water capacity (inches/inch) [1]	<0.10	Droughty.
6. USDA texture (surface layer)	COS, S, FS, VFS, LCOS, LS, LFS, LVFS	Fast intake.
7. USDA texture (surface layer)	SIC, C, SC	Slow intake.
8. Wind erodibility group	1, 2, 3	Soil blowing.
9. Permeability in the upper 60 inches (inches/hour)	<0.2	Percs slowly.
10. Depth to bedrock (inches)	<40	Depth to rock.
11. Depth to cemented pan (inches)	<40	Cemented pan.
12. Fragipan (great group)	All fragi	Rooting depth.
13. Bulk density in the upper 40 inches (g/cc)	>1.7	Rooting depth.
14. Erosion factor K (surface layer)	>.35	Erodes easily.
15. Flooding	Common	Flooding.
16. Sodium adsorption ratio (0 to 40 inches) or great group or phase	>12 (natric, halic, alkali phases)	Excess sodium.
17. Salinity in the upper 40 inches (mmhos/cm)	>4	Excess salt.
18. Soil reaction (pH) (any depth)	<3.6	Too acid.
19. Complex landscape	(3)	Complex slope.
20. Formation of pits	(4)	Pitting.
21. Carbonates	(5)	Excess lime.

[1] Weighted average to 40 inches.

[2] Disregard if depth to water table is below 3 feet during growing season.

[3] If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.

[4] If the soil is susceptible to the formation of pits caused by the melting of ground ice when ground cover is removed, list "Pitting" as a restrictive feature.

[5] If the amount of carbonate is so high that it restricts the growth of plants, list "Excess lime" as a restrictive feature.

Terraces and Diversions

Property	Limits	Restrictive feature
1. USDA texture	Ice	Permafrost.
2. Slope (percent)	>8	Slope.
3. Fraction greater than 3 inches (percent by weight) [1]	>15	Large stones.
4. Depth to bedrock (inches)	<40	Depth to rock.
5. Depth to cemented pan (inches)	<40	Cemented pan.
6. Erosion factor K (upper 40 inches)	>.35	Erodes easily.
7. Depth to high water table (feet)	+ <3.0	Ponding. Wetness.
8. Fragipan (great group)	All fragi	Rooting depth.
9. USDA texture [2]	COS, S, FS, LS, LCOS, SG	Too sandy.
10. Wind erodibility group	1, 2, 3	Soil blowing.
11. Permeability (inches/hour) [2]	<0.2	Percs slowly.
12. Downslope movement	([3])	Slippage.
13. Complex landscape	([4])	Complex slope.
14. Availability of outlets	([5])	Poor outlets.

[1] Weighted average to 40 inches.

[2] Thickest layer between 10 and 60 inches.

[3] If the soil is susceptible to movement downslope when loaded, excavated, or wet, list "Slippage" as a restrictive feature.

[4] If complex and irregular slopes cause difficulty in design, installation, or functioning of the system, list "Complex slope" as a restrictive feature.

[5] If good outlets are difficult to find, list "Poor outlets" as a restrictive feature.

Range Seeding

Property	Limits			Restrictive feature
	Good	Fair	Poor	
Moisture regime	Aquic, xeric, ustic, and xeric and ustic bordering on aridic or torric.	Aridic and torric bordering on aquic, xeric, or ustic.	Aridic and torric.	Too arid.
Effective moisture [1]	>10 in. (25 cm)	7-10 in. (17.5-25 cm)	<7 in. (17.5 cm)	Too arid.
Available water capacity	Surface 10 in. (27 cm) >1.25 in. (3.2 cm). Soil profile > 4 in. (10.2 cm).	Surface 10 in. (25 cm) 0.75-1.25 in. (1.9-3.2 cm). Soil profile 2.5-4 in. (6.4-10.2 cm).	Surface 10 in. (25 cm) <0.75 in. (1.9 cm). Soil profile < 2-5 in. (6.4 cm).	Droughty.
Texture surface 7 in. (17.5 cm)	LVFS, COSL, SL, FSL, VFSL, L SIL, SCL, and CL SICL with <35% C.	VFS, LFS, SC, SIC, C and CL and SICL with >35% C.	LS, LCOS, FS, COS.	Too sandy. Too clayey.
Rock fragments in surface 7 in. (17.5 cm)	GR <35%; CB <15%; ST <3%. Total rock fragments <35%.	GR <35%; CB 15-35%; ST 3-15%. Total rock fragments <35%.	GR >35%; CB 35%; ST >15%. Total rock fragments >35%.	Small stones. Large stones.
Depth to abrupt A-B texture boundary [2]	>10 in. (25 cm)	>10 in. (25 cm)	<10 in. (25 cm)	Rooting depth.
Depth to bedrock or hardpan	>20 in. (50 cm)	10-20 in. (25-50 cm)	<10 in. (25 cm)	Depth to rock/pan.
Electrical conductivity-saturation extract-25°C	<2 mmhos/cm (0.2 s/m) in upper 20 in. (50 cm).	2-4 mmhos/cm (0.2-0.4 s/m) in upper 10 in. (25 cm) and 4-8 mmhos/cm (0.4-0.8 s/m) in 10-20 (25-50 cm).	>4 mmhos/cm (0.4 s/m) in upper 10 in. (25 cm) and/or >8 mmhos/cm (0.8 s/m) in 10-20 in. (25-50 cm).	Excess salt.
Sodium adsorption ratio	<8 in upper 20 in. (50 cm).	8-13 in upper 10 in. (25 cm) and <20 in 10-20 in. (25-50 cm).	>13 in upper 10 in. (25 cm) and/or >20 in 10-20 in. (25-50 cm).	Excess sodium.
K x percent slope [3]	<4 [4]; <6 [5]	4-6 [4]; 6-8 [5]	>6 [4]; >8 [5]	Erodes easily.
I x C [6]	<60	<60	>60	Soil blowing.
Soil surface morphological types [7]	Types I and II >60%; Type IV <5%; or with mollic epipedon [8]	Types I and II >60%; Type IV <10% [8]	Type III <60%; Type IV >10% [8]	Too crusty.

[1] Moisture from precipitation, run-on, and ground water budgeted to actual evapotranspiration.
[2] Rate Vertisols and Vertic subgroups as poor.
[3] Sheet and rill erosion hazard (bare soil).
[4] For ustic bordering on aridic or torric, and aridic or torric bordering on ustic moisture regimes.
[5] For xeric, xeric bordering on aridic or torric, and aridic or torric bordering on xeric moisture regimes.
[6] Wind erosion hazard (bare soil).
[7] See: (1) Final Report. Properties, Occurrence and Management of Soils with Vesicular Surface Horizons, 1977. Contract No. 52500-CT 5(N). USDI-BLM and UNR-Ag. Exp. Stn. Eckert, Peterson, Wood, and Blackburn; and (2) Final Report. Properties, Occurrence and Management of Soils with Vesicular Surface Horizons—Effects of Trampling on Seedling Emergence. 1979. Contract No. YA 512-CT 7-14. USDI-BLM and UNR-Ag. Exp. Stn. Stephens, Eckert, and Peterson.
[8] Soils without crusting morphology are to be included in Types I and II for rating.

Guide for Estimating the Hazard of Erosion on Bare Soil in Nevada

"K" means erosion factor K; "S" means percent slope; "I" means wind erodibility index; "C" means climatic factor.

	Water (K x S)	Wind (I x C)
Slight	<4	<60
Moderate	4-8	60-100
High	>8	>100

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1966-75 at Carlin, 1951-78 at Elko and Owyhee, 1939-68 at Wells, 1941-70 at Jiggs, and 1958-78 at Tuscarora)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
CARLIN:											
January----	34.2	18.7	26.5	54	-8	0	1.40	0.79	1.88	4	10.1
February---	38.8	21.8	30.3	58	4	11	.98	.26	1.55	4	9.2
March------	43.7	24.6	34.2	67	7	61	1.44	.96	1.87	5	8.8
April------	49.1	28.6	38.9	72	14	101	1.48	.69	2.12	5	6.1
May--------	63.7	40.0	51.9	83	21	381	1.09	.28	1.73	2	.3
June-------	72.3	49.3	60.8	91	30	624	1.84	.77	2.79	4	.0
July-------	84.6	59.2	72.0	94	38	992	.66	.11	1.07	2	.0
August-----	82.5	57.2	69.8	93	42	924	.47	.00	.79	1	.0
September--	73.0	47.3	60.2	89	28	606	.51	.00	.86	1	.0
October----	57.4	35.3	46.4	78	12	224	1.31	.64	1.84	4	2.2
November---	42.7	27.4	35.6	65	9	46	1.45	.71	2.05	4	4.9
December---	33.2	18.2	25.7	52	-5	11	2.14	1.33	2.86	6	14.0
Yearly:											
Average---	56.4	35.6	46.0	---	---	---	---	---	---	---	---
Extreme---	---	---	---	94	-10	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,981	14.77	11.01	17.58	42	55.6
ELKO:											
January----	36.2	12.4	24.4	55	-18	19	1.05	.40	1.59	4	9.8
February---	42.0	18.8	30.4	63	-8	55	.78	.32	1.16	3	5.6
March------	48.8	22.8	35.8	72	1	72	.86	.34	1.30	4	6.6
April------	58.0	28.3	43.2	78	13	150	.79	.31	1.18	3	3.4
May--------	68.6	35.9	52.2	89	18	384	.97	.25	1.56	4	1.3
June-------	79.1	43.3	61.2	98	28	636	.95	.22	1.52	3	.0
July-------	90.1	49.6	69.9	100	36	927	.34	.10	.53	1	.0
August-----	87.7	47.1	67.4	99	30	849	.63	.03	1.06	2	.0
September--	78.2	37.6	57.9	94	19	537	.49	.03	.81	2	.0
October----	66.0	28.4	47.2	83	12	242	.58	.08	.96	2	.9
November---	49.3	21.1	35.2	70	-1	44	.83	.36	1.23	3	4.0
December---	37.7	13.5	25.6	55	-13	14	1.03	.36	1.59	4	9.2
Yearly:											
Average---	61.8	29.9	45.9	---	---	---	---	---	---	---	---
Extreme---	---	---	---	101	-20	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,929	9.30	6.94	11.88	35	40.8

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature				Pecipitation		
	Average daily maximum	Average daily minimum	Average	Average number of growing degree days*	Average	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	Units	In		In
WELLS:							
January----	35.7	9.5	22.7	0	0.99	3	13.1
February---	40.3	16.0	27.8	8	.83	3	8.9
March------	47.0	21.0	34.0	60	.97	3	9.2
April------	58.5	27.1	42.8	111	1.02	3	4.0
May--------	68.2	34.1	51.2	375	1.28	4	1.5
June-------	77.3	40.2	58.8	603	1.16	3	.0
July-------	89.8	47.9	68.9	949	.35	1	.0
August-----	87.5	44.2	65.9	872	.46	1	.0
September--	78.0	35.2	56.6	569	.52	2	.0
October----	65.4	27.3	46.4	224	.78	2	1.4
November---	47.9	19.2	33.5	43	1.09	3	6.4
December---	38.2	12.9	25.6	11	1.01	3	11.2
Yearly:							
Average---	61.2	27.9	44.5	---	---	---	---
Total-----	---	---	---	3,825	10.46	31	55.9
JIGGS:							
January----	39.6	11.5	25.6	0	1.00	4	12.9
February---	43.1	15.2	29.2	10	.95	4	9.2
March------	49.8	18.6	34.2	61	1.12	4	11.9
April------	58.1	24.8	41.5	107	1.35	4	5.5
May--------	68.2	32.9	50.6	371	1.53	5	4.7
June-------	77.0	39.5	58.3	598	1.20	3	.1
July-------	89.2	43.4	66.3	913	.71	2	.0
August-----	87.0	39.9	63.5	840	.62	4	.0
September--	78.0	31.4	54.7	550	.58	2	.3
October----	67.3	23.6	45.5	219	.88	3	2.1
November---	51.4	17.5	34.5	44	1.06	5	4.5
December---	39.7	11.7	25.7	11	1.15	4	11.5
Yearly:							
Average---	62.4	25.8	42.9	---	---	---	---
Total-----	---	---	---	3,724	12.15	44	62.7

See footnote at end of table.

TABLE 1.--TEMPERATURE AND PRECIPITATION--Continued

Month	Temperature						Precipitation				
				2 years in 10 will have--		Average		2 years in 10 will have--		Average	
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	number of growing degree days*	Average	Less than--	More than--	number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
OWYHEE:											
January----	37.6	17.8	27.8	58	-19	27	1.39	0.75	1.95	6	10.1
February---	41.5	21.8	31.7	61	-6	43	1.08	.55	1.53	5	10.2
March------	45.2	23.5	34.4	68	0	40	1.42	.78	1.97	5	10.6
April------	53.9	29.8	41.9	77	14	128	1.44	.69	2.08	5	10.0
May--------	64.1	37.6	50.9	85	19	356	1.71	.65	2.62	6	1.2
June-------	73.7	44.2	59.0	92	29	570	1.76	.45	2.79	4	.1
July-------	85.2	51.4	68.3	95	37	877	.33	.06	.54	1	.0
August-----	82.9	49.5	66.2	95	31	812	.51	---	.88	2	.0
September--	74.2	40.3	57.3	91	23	519	.74	.13	1.21	2	.0
October----	63.2	31.9	47.6	82	15	251	1.00	.20	1.62	3	1.9
November---	48.1	25.4	36.7	70	3	90	1.22	.38	1.89	4	4.7
December---	40.1	19.5	29.8	60	-13	19	1.47	.66	2.16	7	12.0
Yearly:											
Average---	59.1	32.7	46.0	---	---	---	---	---	---	---	---
Extreme---	---	---	---	96	-21	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,692	14.07	11.29	16.86	50	60.8
TUSCARORA:											
January----	36.9	16.0	26.5	56	-18	0	1.13	.47	1.68	5	9.0
February---	39.6	20.0	29.8	57	-4	26	.91	.29	1.40	4	4.2
March------	44.3	22.4	33.4	67	0	38	.97	.51	1.36	4	6.4
April------	51.9	26.9	39.4	73	10	116	.82	.29	1.26	3	2.3
May--------	62.8	33.9	48.4	84	18	286	1.13	.48	1.69	4	1.3
June-------	73.5	41.8	57.7	91	27	531	1.47	.38	2.35	5	.0
July-------	85.1	49.6	67.4	95	35	849	.62	.08	1.04	2	.0
August-----	83.0	47.5	65.2	95	31	781	.62	.01	1.04	2	.0
September--	72.3	38.8	55.6	89	19	477	.80	.13	1.31	3	.2
October----	62.8	31.9	47.4	81	14	258	.72	.14	1.17	2	.5
November---	46.1	23.7	35.0	68	0	27	1.21	.35	1.90	4	3.0
December---	38.1	18.1	28.2	58	-10	30	1.32	.45	2.05	5	13.7
Yearly:											
Average---	58.0	30.0	44.5	---	---	---	---	---	---	---	---
Extreme---	---	---	---	95	-20	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,419	11.72	9.79	14.13	43	40.06

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1956-78 at Carlin, 1951-78 at Elko and Owyhee, 1939-68 at Wells, 1941-70 at Jiggs, and 1958-78 at Tuscarora)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
CARLIN:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 15	May 31	June 18
2 years in 10 later than--	May 11	May 25	June 11
5 years in 10 later than--	May 2	May 13	June 29
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 1	Sept. 24	Aug. 11
2 years in 10 earlier than--	Oct. 9	Sept. 29	Aug. 25
5 years in 10 earlier than--	Oct. 25	Oct. 9	Sept. 21
ELKO:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 27	June 10	June 24
2 years in 10 later than--	May 20	June 4	June 18
5 years in 10 later than--	May 5	May 22	June 6
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 15	Sept. 2	Aug. 20
2 years in 10 earlier than--	Sept. 21	Sept. 9	Aug. 26
5 years in 10 earlier than--	Oct. 2	Sept. 22	Sept. 8

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
WELLS:			
Last freezing temperature in spring:			
1 year in 10 later than--	June 10	June 27	July 14
2 years in 10 later than--	June 5	June 20	July 6
5 years in 10 later than--	May 20	June 6	June 23
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 1	Aug. 22	Aug. 11
2 years in 10 earlier than--	Sept. 5	Aug. 26	Aug. 13
5 years in 10 earlier than--	Sept. 19	Sept. 10	Aug. 25
JIGGS:			
Last freezing temperature in spring:			
1 year in 10 later than--	June 17	June 30	July 8
2 years in 10 later than--	June 8	June 20	July 2
5 years in 10 later than--	May 20	May 30	June 22
First freezing temperature in fall:			
1 year in 10 earlier than--	Aug. 23	Aug. 18	Aug. 7
2 years in 10 earlier than--	Aug. 28	Aug. 21	Aug. 13
5 years in 10 earlier than--	Sept. 9	Aug. 27	Aug. 26

TABLE 2.--FREEZE DATES IN SPRING AND FALL--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
OWYHEE:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 24	May 30	June 27
2 years in 10 later than--	May 18	May 25	June 20
5 years in 10 later than--	May 6	May 15	June 8
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 20	Sept. 9	Aug. 15
2 years in 10 earlier than--	Sept. 26	Sept. 14	Aug. 24
5 years in 10 earlier than--	Oct. 6	Sept. 24	Sept. 10
TUSCARORA:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 27	June 16	July 5
2 years in 10 later than--	May 21	June 9	June 29
5 years in 10 later than--	May 11	May 26	June 19
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 15	Aug. 27	July 28
2 years in 10 earlier than--	Sept. 21	Sept. 3	Aug. 8
5 years in 10 earlier than--	Oct. 2	Sept. 17	Aug. 28

TABLE 3.--GROWING SEASON

(Recorded in the period 1966-75 at Carlin; 1951-78 at Elko, Wells, and Owyhee; 1941-70 at Jiggs; and 1958-78 at Tuscarora)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
CARLIN:			
9 years in 10	141	127	82
8 years in 10	153	134	93
5 years in 10	175	148	114
2 years in 10	198	163	135
1 year in 10	210	170	146
ELKO:			
9 years in 10	118	95	63
8 years in 10	129	104	74
5 years in 10	149	122	93
2 years in 10	170	140	112
1 year in 10	180	150	122
WELLS:			
9 years in 10	94	67	36
8 years in 10	105	78	45
5 years in 10	122	96	63
2 years in 10	140	115	78
1 year in 10	150	123	86
JIGGS:			
9 years in 10	79	56	39
8 years in 10	90	70	45
5 years in 10	112	89	65
2 years in 10	135	110	79
1 year in 10	145	120	89

TABLE 3.--GROWING SEASON--Continued

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
OWYHEE:			
9 years in 10	127	108	63
8 years in 10	136	116	74
5 years in 10	153	131	93
2 years in 10	170	146	113
1 year in 10	179	154	123
TUSCARORA:			
9 years in 10	118	81	35
8 years in 10	127	92	47
5 years in 10	144	113	70
2 years in 10	161	134	93
1 year in 10	170	145	104

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
010	Boulflat, cobbly-Boulflat-Humdun association	1,320	0.1
011	Cherry Spring-Orovada-Yuko association	2,345	0.1
021	Betra-McIvey-Heechee association	18,949	0.7
030	Gollaher-Cleavage-Hapgood association	3,730	0.1
060	Kodra loam, 0 to 4 percent slopes	555	*
070	Tenvorrd-Kodra association	1,475	0.1
080	Loncan Variant loam, 0 to 2 percent slopes	150	*
110	Moranch-Ocala-Orovada association	11,290	0.4
121	Pernog-Rock outcrop association	2,185	0.1
131	Zevadez-Puett-Puett, steep association	7,150	0.3
132	Zevadez-Soughe-Hunewill association	6,585	0.3
133	Zevadez-Wieland-Dewar association	1,720	0.1
134	Zevadez-Humdun-Vanwyper association	960	*
135	Zevadez-Enko-Puett association	6,280	0.2
141	Kelk-Kelk, occasionally flooded-Enko association	3,210	0.1
142	Kelk-Dacker-Puett association	9,195	0.4
145	Kelk-Ocala-Moranch association	3,800	0.1
146	Kelk-Bloor-Ocala association	1,460	0.1
149	Kelk-Sonoma association	3,585	0.1
151	Dewar-Gance-Wieland association	16,450	0.6
152	Dewar-Zevadez-Puett association	2,940	0.1
153	Dewar-Gance-Bilbo association	6,005	0.2
154	Dewar-Chiara-Gance association	11,275	0.4
161	Sonoma-Sonoma, rarely flooded association	2,975	0.1
162	Sonoma-Hussa association	2,170	0.1
163	Sonoma, frequently flooded-Devilsgait-Sonoma association	7,615	0.3
166	Sonoma-Devilsgait association	1,085	*
167	Sonoma-Kelk association	1,320	0.1
171	Hussa-Ocala-Welsum association	3,480	0.1
172	Hussa-Halleck-Welsum association	12,255	0.5
181	Crooked Creek-Crooked Creek, gravelly substratum-Ocala association	2,810	0.1
182	Crooked Creek-Hussa-Alburz association	3,330	0.1
183	Crooked Creek-Welsum association	2,970	0.1
184	Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded	3,815	0.1
187	Crooked Creek-Devilsgait-Ocala association	2,950	0.1
189	Crooked Creek, gravelly substratum-Crooked Creek association	8,455	0.3
191	Tustell-Gance-Mahala association	40,105	1.5
198	Tustell-Tustell, strongly sloping-Gance association	6,930	0.3
200	Tustell-Zevadez-Donna association	1,375	0.1
201	Hopeka-Cavehill association	18,000	0.7
206	Hopeka-Grina-Izod association	13,080	0.5
211	McIvey-Igdell-Bilbo association	8,390	0.3
212	McIvey-Eboda-Akler association	9,695	0.4
213	McIvey-Quarz-Rock outcrop association	14,490	0.6
215	McIvey-Short Creek-Cotant association	5,575	0.2
218	McIvey-Stampede-Heechee association	25,375	1.0
219	McIvey-Chen-Tweener association	3,660	0.1
221	Enko-Kelk-Enko, very fine sandy loam association	8,640	0.3
222	Enko-Zevadez-Puett association	9,185	0.4
223	Enko-Kelk-Connel association	5,020	0.2
224	Enko-Enko, gravelly association	7,380	0.3
225	Enko-Hunnton association	3,545	0.1
226	Enko-Rad association	30,485	1.2
227	Enko-Wieland-Enko, moderately steep association	4,610	0.2
228	Enko-Kelk assoication	18,480	0.7
229	Enko-Puett association	840	*
232	Bioya-Orovada association	123,057	4.6
236	Cleavage-Bullump-Hapgood association	5,910	0.2
237	Cleavage-Tweener-Pernog association	940	*
238	Cleavage-Tweener-Graley association	1,470	0.1
239	Cleavage-Vitale association	3,230	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
240	Cleavage-Cleavage, strongly sloping association	15,090	0.6
241	Cleavage-Cleavage, very cobbly-Loncan association	41,230	1.6
242	Cleavage-Loncan-Lyra association	4,075	0.2
243	Cleavage-Sumine-McIvey association	15,190	0.6
244	Cleavage, moderately steep-Cleavage-Eboda association	2,765	0.1
245	Cleavage-Glean-Inpendence association	6,535	0.2
247	Cleavage-Sumine-Hapgood association	15,855	0.6
248	Cleavage-Tweener-Lerrow association	4,700	0.2
251	Ocala-Kelk-Devilsgait association	11,800	0.5
256	Ocala, occasionally flooded-Ocala association	1,940	0.1
258	Ocala-Devilsgait-Devilsgait, occasionally flooded association	11,005	0.4
259	Ocala-Sonoma association	2,865	0.1
260	Ocala-Halleck association	3,705	0.1
261	Linkup-Roca-Vanwyper association	67,765	2.6
262	Linkup-Roca association	3,215	0.1
271	Pernty-Shivlum association	1,125	*
272	Pernty-Sumine-Cleavage association	5,515	0.2
282	Bloor-Enko association	1,440	0.1
283	Bloor-Connel-Kelk association	7,620	0.3
291	Tweba-Moranch association	420	*
294	Sonoma Variant-Halleck association	1,860	0.1
303	Akler-Cleavage-McIvey association	12,720	0.5
304	Akler-Yuko-Welch association	2,380	0.1
305	Akler-Kleckner-Short Creek association	13,705	0.5
306	Akler-Quarz-Soughe association	4,015	0.2
307	Akler-Lerrow association	4,140	0.2
309	Akler-Vanwyper-Rock outcrop association	9,535	0.4
311	Shayla-Dewar-Vanwyper association	7,105	0.3
321	Grina-Lyra-Loncan Variant association	1,620	0.1
322	Grina-Enko, moderately steep-Enko association	5,630	0.2
323	Grina-Kelk-Orovada association	17,175	0.7
324	Grina-Samor association	3,935	0.2
325	Grina-Karpp-Rad association	8,955	0.3
331	Bunky-Grina-Enko association	7,550	0.3
345	Perwick-Puett-Rad association	650	*
367	Peeko-Hunnton-Puett association	2,460	0.1
370	Chiara-Cherry Spring-Orovada association	6,675	0.3
371	Chiara-Bioya association	1,575	0.1
374	Chiara-Wieland-Enko association	1,510	0.1
378	Chiara-Spilock-Kelk association	2,055	0.1
379	Chiara-Kelk-Kelk, rarely flooded association	4,875	0.2
380	Chiara-Peeko-Izod association	2,405	0.1
400	Bilbo-Gance-Tustell association	4,155	0.2
403	Bilbo-Shivlum-McIvey association	4,295	0.2
411	Bilbo-Wieland-Soughe association	5,975	0.2
413	Vanwyper-Bilbo-Soughe association	5,470	0.2
414	Vanwyper-Loomis association	13,210	0.5
415	Vanwyper-Akler-Eboda association	2,060	0.1
416	Vanwyper-Roca association	4,055	0.2
417	Vanwyper-Linkup-Loomis association	4,435	0.2
418	Vanwyper-Connel-Hunewill association	7,360	0.3
431	Gance-Shayla-Roca association	3,850	0.1
432	Gance-Chiara-Hunnton association	4,200	0.2
440	Devilsgait-Woofus-Devilsgait, gravelly substratum association	36,205	1.4
441	Devilsgait-Devilsgait, frequently flooded-Ocala association	1,015	*
442	Devilsgait-Crooked Creek association	3,600	0.1
443	Devilsgait-Sonoma association	2,780	0.1
447	Donna gravelly loam, 2 to 8 percent slopes	7,795	0.3
448	Donna-Stampede-Quarz association	5,695	0.2
449	Donna-Stampede-Short Creek association	9,360	0.4

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
452	Donna-Bilbo-Stampede association	16,100	0.6
454	Donna-Short Creek-Kleckner association	1,670	0.1
455	Donna-Kleckner-Donna, strongly sloping association	31,930	1.2
456	Donna-Stampede-Gance association	41,995	1.6
457	Donna-Gochea-Kleckner association	6,305	0.2
460	Stampede-Betra-McIvey association	5,360	0.2
461	Stampede-Kleckner association	7,845	0.3
462	Stampede-Donna-Bilbo association	16,615	0.6
465	Stampede-Gochea-Zevadez association	7,895	0.3
466	Stampede-Bilbo association	28,570	1.1
467	Stampede-Donna-Gance association	3,045	0.1
469	Stampede-Donna association	13,990	0.5
470	Stampede-Puett-Peeko association	1,655	0.1
477	Hunnton-Dacker association	8,965	0.3
478	Hunnton-Wieland-Bilbo association	52,695	2.0
479	Hunnton-Wieland-Bloor association	3,275	0.1
480	Hunnton-Wieland-Gance association	48,350	1.8
481	Hunnton-Chiara association	17,000	0.6
482	Hunnton-Wieland-Hunnton, gravelly association	75,445	2.8
485	Hunnton-Wieland-Wieland, moderately steep association	28,665	1.1
486	Hunnton-Chiara-Wieland association	31,575	1.2
489	Hunnton-Wieland-Bioya association	29,400	1.1
490	Orovada-Bioya-Haybourne association	32,455	1.2
491	Orovada-Puett association	2,760	0.1
492	Orovada-Humdun-Puett association	6,785	0.3
494	Orovada-Puett-Chiara association	12,675	0.5
496	Orovada-Grina-Upsteer association	3,205	0.1
501	Short Creek-Short Creek, very steep association	340	*
511	Dacker-Gance-Kelk association	19,554	0.7
512	Dacker-Zevadez-Kelk association	24,310	0.9
513	Dacker-Dewar-Hunewill association	7,295	0.3
516	Dacker-Yuko-Wieland association	1,815	0.1
521	Norfork-Loomis-Chiara association	9,525	0.4
530	Upville-Connel-Halleck association	8,545	0.3
540	Gando-Inpendence-Bullump association	8,140	0.3
570	Sumine-Hapgood-Cleavage association	15,310	0.6
571	Sumine-Tusel-Gando association	16,705	0.6
572	Sumine-Shivlum-Cleavage association	4,250	0.2
573	Sumine-Hackwood-Gando association	2,580	0.1
574	Sumine-Cleavage-Cleavage, very cobbly association	49,060	1.9
575	Sumine-Hapgood-Hackwood association	4,840	0.2
576	Sumine-Cleavage-Hapgood association	4,715	0.2
577	Sumine-Tusel-Hapgood association, steep	3,055	0.1
578	Sumine-Tusel-Hapgood association, very steep	8,080	0.3
579	Sumine-Pernty-Tusel association	2,450	0.1
580	Sumine-Cleavage-Pernty association	2,655	0.1
582	Sumine-Vitale-Bullvaro association	12,335	0.5
583	Sumine-Cleavage-Rock outcrop association	11,520	0.4
584	Sumine-Pernty-Hapgood association	7,250	0.3
585	Sumine-Pernty-McIvey association	2,505	0.1
586	Sumine-Loncan-Cleavage association	2,645	0.1
587	Sumine-Bullvaro-Hackwood association	5,775	0.2
590	Bucan-Kelk-Orovada association	320	*
591	Bucan-Vanwyper-Akler assocaition	4,475	0.2
600	Hapgood-Bullump-Gando association	6,355	0.2
620	Soughe, eroded-Soughe association	1,740	0.1
630	Cowgil Variant-Soughe association	3,910	0.1
631	Hunewill-Bilbo-Devilsgait association	3,110	0.1
632	Hunewill-Kelk-Devilsgait association	3,575	0.1
633	Hunewill, strongly sloping-Kelk-Hunewill association	2,025	0.1
640	Arcia-Tusel-Hackwood association	5,845	0.2

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
650	Karpp-Chiara-Rad association	10,900	0.4
651	Karpp-Chiara-Wieland association	6,310	0.2
660	Ichbod-Akler association	3,655	0.1
690	Welch, drained-Welch association	12,375	0.5
693	Welch-Woofus association	1,535	0.1
695	Welch-Crooked Creek-Welch, occasionally flooded association	5,480	0.2
698	Halleck, occasionally flooded-Halleck-Crooked Creek association	2,045	0.1
700	Leevan-Cleavage-Arcia association	8,095	0.3
701	Leevan-Pernog-Rock outcrop association	3,660	0.1
702	Leevan-Quarz-McIvey association	4,895	0.2
710	Samor-Porrone-Rock outcrop association	2,030	0.1
711	Samor-Siri-Nirac association	925	*
712	Samor-Nirac-Samor, steep association	7,120	0.3
716	Samor-Rock outcrop-Nirac association	5,625	0.2
719	Samor-Sumine-Eboda association	1,130	*
722	Lerrow-Hapgood-Cleavage association	1,335	0.1
723	Lerrow-Cotant-Bregar association	1,600	0.1
740	Connel extremely gravelly coarse sandy loam, 0 to 2 percent slopes	585	*
760	Yuko-Tuffo-Quarz association	2,500	0.1
761	Yuko-Tuffo-Bregar association	1,855	0.1
762	Yuko-Bilbo association	1,260	*
763	Yuko-Tuffo-Yuko, moderately steep association	13,385	0.5
764	Yuko-Tuffo-Upsteer association	13,375	0.5
770	Gochea-Donna association	4,515	0.2
771	Gochea-Welch, drained-Welch association	3,880	0.1
772	Gochea-Gochea, gravelly-Tuffo association	3,145	0.1
773	Gochea-Samor-Nirac association	1,650	0.1
775	Gochea-Donna-Stampede association	3,215	0.1
780	Cowgil-Linkup-Rock outcrop association	4,495	0.2
810	Nirac-Izod-Izod, very steep association	7,345	0.3
813	Spilock-Gochea-Chiara association	5,050	0.2
814	Denay-Siri-Bobs association	2,175	0.1
832	Alburz-Alburz Variant association	4,285	0.2
834	Alburz-Welch association	1,025	*
835	Alburz-Ocala association	0	*
839	Woofus-Tweba-Devilsgait association	5,935	0.2
840	Ninemile-Quarz-Rock outcrop association	1,110	*
851	Loomis-Izod association	6,090	0.2
852	Loomis-Vanwyper-Norfork association	9,890	0.4
862	Loncan-Hapgood-Cleavage association	7,235	0.3
881	Kleckner-Fulstone-Stampede association	2,215	0.1
912	Tuffo-Yuko-Tuffo, moderately steep association	14,295	0.5
913	Tuffo-Yuko-Vanwyper association	3,555	0.1
920	Bullump-Gando-Tusel association	3,250	0.1
923	Bullump-Cleavage-Tusel associaion	5,030	0.2
925	Bullump-Quarz-Gando association	5,030	0.2
926	Bullump-Pernty-Cleavage association	4,665	0.2
970	Izod, steep-Wedekind-Izod association	1,800	0.1
971	Izod-Porrone association	5,565	0.2
972	Izod-Porrone-Chiara association	1,015	*
973	Izod, extremely gravelly-Izod-Rock outcrop association	2,920	0.1
990	Eboda-Hart Camp-Cotant association	3,815	0.1
992	Eboda-Loncan-Leevan association	1,710	0.1
993	Eboda-Quarz-Loncan association	3,625	0.1
1230	Fulstone-Hunnton association	5,900	0.2
1231	Fulstone-Dacker-Wieland association	16,210	0.6
1232	Fulstone-Dacker-Yuko association	4,725	0.2
1234	Fulstone-Igdell-McIvey association	1,130	*
1270	Wieland-Dacker-Puett association	17,900	0.7
1271	Wieland-Enko association	34,360	1.3
1272	Wieland-Gance-Dacker association	15,625	0.6

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
1273	Wieland-Bilbo-Tustell association	3,940	0.2
1274	Wieland-Tuffo-Chiara association	3,775	0.1
1276	Wieland-Chiara-Puett association	645	*
1277	Wieland-Hunnton-Tustell association	13,465	0.5
1278	Wieland-Kelk-Wieland, moderately steep association	3,960	0.2
1279	Wieland-Kelk-Puett association	4,630	0.2
1280	Wieland-Zevadez-Gance association	2,335	0.1
1281	Wieland-Tustell-Tustell, moderately steep association	4,445	0.2
1631	Hackwood-Hapgood-Cleavage association	1,605	0.1
1662	Susie Creek-Kleckner-Quarz association	4,590	0.2
1663	Susie Creek-Akler-Eboda association	2,480	0.1
1664	Susie Creek-Akler-Yuko association	4,010	0.2
1721	Quarz-Quarz, sloping-Arcia association	3,200	0.1
1722	Quarz-Pernty, moderately steep-Pernty association	3,570	0.1
1724	Quarz-McIvey-Cleavage association	4,735	0.2
1725	Quarz-Cleavage-Loncan association	55,825	2.1
1727	Quarz-Susie Creek-Loncan association	4,860	0.2
1728	Quarz-Cleavage-Tusel association	4,730	0.2
1729	Quarz-Tusel-Cleavage association	7,895	0.3
1805	Bregar-Sumine-Hapgood association	1,890	0.1
1806	Bregar-Graley-Chen association	1,665	0.1
1807	Bregar-Bregar, eroded-McIvey association	2,390	0.1
1808	Bregar-McIvey-Cotant association	5,045	0.2
1821	Cotant-McIvey-Quarz association	43,810	1.7
1822	Cotant-Bregar-Donna association	1,060	*
1823	Cotant-Kleckner-McIvey association	8,745	0.3
1824	Cotant, moderately steep-Cotant-McIvey association	14,030	0.5
1825	Cotant-Cotant, moderately steep-McIvey association	3,400	0.1
1826	Cotant-Cotant, steep-Eboda association	10,350	0.4
1828	Cotant-Lerrow-Akler association	7,225	0.3
1829	Cotant-McIvey-Rock outcrop association	34,680	1.3
1830	Cotant-McIvey-Shively association	18,905	0.7
1831	Cotant-McIvey-Welch association	10,865	0.4
1875	Chen-Ebic-Blackleg association	1,970	0.1
1876	Chen-Ebic association	195	*
1877	Chen-Bregar-Loncan association	750	*
1879	Chen-Cotant-Arcia association	3,825	0.1
1880	Chen-Arcia-Cleavage association	12,720	0.5
1881	Chen, moderately steep-Chen-Lerrow association	28,825	1.1
1882	Chen-Lerrow-Cleavage association	1,205	*
1883	Chen-Lerrow-Cotant association	6,990	0.3
1884	Chen-Graley-Cleavage association	11,150	0.4
1885	Chen-Quarz-Linkup association	4,975	0.2
1886	Chen-Cleavage-Quarz association	8,170	0.3
1887	Chen-Graley association	1,495	0.1
1888	Chen-Graley-Quarz association	1,415	0.1
1889	Chen-McIvey-Arcia association	2,840	0.1
1935	Tweener-Tweener, moderately steep-Graley association	5,135	0.2
1936	Tweener-Tweener, moderately steep-McIvey association	5,370	0.2
2010	Rock outcrop-Pernty-Pernog association	2,055	0.1
2020	Bobs Variant-Dewar association	1,500	0.1
2031	Shalcleav-Tweener association	5,460	0.2
2040	Cameek-Bilbo-Cameek, gently sloping association	930	*
2070	Heechee-Manard-Vitale association	710	*
2071	Heechee-Heechee, very cobbly association	4,665	0.2
2080	Igdell-Manard-Ebic association	2,490	0.1
2081	Igdell-Gance-Eboda association	5,780	0.2
2082	Igdell-Shivlum association	3,550	0.1
2083	Igdell-Kleckner association	10,645	0.4
2090	Manard-Igdell-Eboda association	1,610	0.1
3000	Vitale-Ebic-Chen association	1,610	0.1

See footnote at end of table.

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
3010	Ebic-Manard-Chen association	5,825	0.2
3020	Cleavmor-Blackleg association	3,035	0.1
3030	Cleavmor-Ebic-Blackleg association	1,755	0.1
3040	Peevywell-Cleavage-Leevan association	4,895	0.2
3050	Blackleg-Peevywell-Cleavage association	480	*
3080	Siri Variant-Sumine-Vitale Variant association	7,195	0.3
	Water areas	4,820	0.2
	Total	2,623,895	100.0

* Less than 0.1 percent.

TABLE 5.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
010*:											
Boulflat--------	0-6	Cobbly loam------	ML	A-4	15-30	75-90	70-90	65-80	60-70	20-25	NP-5
	6-20	Gravelly loam, gravelly clay loam, gravelly sandy clay loam.	GC	A-2, A-6	0	60-75	50-75	45-65	25-50	30-35	10-15
	20-34	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0	40-50	35-50	25-45	15-35	15-25	NP-5
	34-39	Cemented material	---	---	---	---	---	---	---	---	---
	39-43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Boulflat--------	0-6	Gravelly loam----	GM	A-4	0	60-75	50-75	45-65	35-50	20-25	NP-5
	6-20	Gravelly loam, gravelly clay loam, gravelly sandy clay loam.	GC	A-2, A-6	0	60-75	50-75	45-65	25-50	30-35	10-15
	20-34	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0	40-50	35-50	25-45	15-35	15-25	NP-5
	34-39	Cemented material	---	---	---	---	---	---	---	---	---
	39-43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Humdun----------	0-7	Loam-------------	ML	A-4	0	100	100	75-85	65-75	20-30	NP-5
	7-29	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
	29-63	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
011*:											
Cherry Spring---	0-10	Silt loam--------	ML	A-4	0	95-100	95-100	85-95	70-80	20-25	NP-5
	10-23	Loam, silt loam, clay loam.	CL-ML, CL	A-4, A-6	0-5	90-100	80-95	75-90	65-75	25-40	5-20
	23-41	Cemented material	---	---	---	---	---	---	---	---	---
	41-63	Stratified sandy loam to extremely gravelly sandy loam.	GM	A-1	0-5	40-55	35-50	30-40	15-25	---	NP
Orovada---------	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
011*:											
Yuko	0-2	Very gravelly coarse sandy loam.	GM	A-1	0-10	40-55	35-50	20-35	10-20	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
021*:											
Betra	0-5	Cobbly loam	CL	A-6	15-25	80-95	70-85	65-80	50-65	25-30	10-15
	5-9	Very gravelly clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-15	55-75	40-75	35-60	30-50	35-40	15-20
	9-21	Very gravelly clay, very cobbly clay.	GC, CH	A-7, A-2	10-45	45-70	35-60	30-60	30-55	55-65	35-45
	21-42	Cemented material	---	---	---	---	---	---	---	---	---
McIvey	0-12	Gravelly loam	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Heechee	0-11	Cobbly loam	CL-ML, CL, SM-SC, SC	A-4, A-6	15-25	80-95	70-80	60-75	45-60	25-35	5-15
	11-33	Very cobbly clay loam, very gravelly sandy clay loam, very cobbly loam.	GC	A-2, A-6	25-50	45-75	35-65	30-60	25-50	30-40	10-20
	33-63	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam, extremely cobbly loam.	GP-GM, GM, GP-GC, GM-GC	A-1, A-2	45-55	30-60	20-50	10-35	5-20	20-30	NP-10
030*:											
Gollaher	0-4	Very gravelly loam.	GM-GC, GC	A-2	0-10	30-50	25-45	20-45	15-35	25-35	5-15
	4-7	Very gravelly loam, extremely gravelly loam.	GM-GC, GC	A-2	0-10	20-45	15-40	10-35	10-30	25-35	5-15
	7-11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
030*:											
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
060	0-4	Loam	CL-ML	A-4	0	85-100	75-100	65-80	55-65	20-30	5-10
Kodra	4-22	Loam, sandy loam	SM-SC, CL-ML	A-4, A-2	0	85-100	75-100	55-80	30-60	20-25	5-10
	22-44	Cemented material	---	---	---	---	---	---	---	---	---
	44-60	Stratified sand to silt loam.	SM-SC, CL-ML	A-4	0	85-100	75-100	65-80	45-60	20-30	5-10
070*:											
Tenvorrd	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	100	95-100	85-95	65-85	25-35	5-15
	7-20	Silt loam, loam	CL-ML, CL	A-4, A-6	0	100	90-100	80-90	60-80	25-35	5-15
	20-28	Indurated material.	---	---	---	---	---	---	---	---	---
Kodra	0-4	Loam	CL-ML	A-4	0	85-100	75-100	65-80	55-65	20-30	5-10
	4-22	Loam, sandy loam	SM-SC, CL-ML	A-4, A-2	0	85-100	75-100	55-80	30-60	20-25	5-10
	22-44	Cemented material	---	---	---	---	---	---	---	---	---
	44-60	Stratified sand to silt loam.	SM-SC, CL-ML	A-4	0	85-100	75-100	65-80	45-60	20-30	5-10
080	0-12	Loam	CL	A-6	0	95-100	95-100	80-95	60-75	25-35	10-15
Loncan Variant	12-38	Stratified loam to clay loam.	CL	A-6	0	95-100	90-100	80-100	60-75	25-35	10-15
	38-60	Loam	CL	A-6	0	95-100	90-100	80-95	60-75	25-35	10-15
110*:											
Moranch	0-5	Silt loam	ML	A-4	0	100	95-100	95-100	80-95	25-35	NP-5
	5-20	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5
	20-61	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5
Ocala	0-20	Silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
110*:											
Orovada	0-7	Loam	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
121*:											
Pernog	0-10	Very stony loam	GM-GC, GC	A-4, A-6	30-45	60-75	45-70	40-65	35-50	25-35	5-15
	10-17	Very stony clay loam, very stony loam.	GC	A-6, A-7	25-30	55-70	50-65	40-55	35-50	30-45	10-20
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
131*:											
Zevadez	0-5	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	85-100	75-100	55-80	35-60	20-30	NP-10
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Puett	0-2	Sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
132*:											
Zevadez	0-5	Gravelly loam	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
132*:											
Soughe----------	0-4	Very cobbly loam	GM-GC, GM	A-4	30-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hunewill--------	0-7	Gravelly sandy loam.	GM, SM	A-1	0-5	55-80	50-75	30-45	15-25	---	NP
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
133*:											
Zevadez----------	0-5	Gravelly loam----	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Wieland----------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Dewar----------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
134*:											
Zevadez	0-5	Gravelly loam	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Humdun	0-7	Loam	ML	A-4	0	100	100	75-85	65-75	20-30	NP-5
	7-29	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
	29-63	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
Vanwyper	0-8	Very cobbly loam	SC	A-2, A-6	30-45	70-80	55-65	40-55	30-40	25-35	10-15
	8-39	Very cobbly clay loam, very cobbly clay.	GC, CL, CH	A-7	35-55	55-75	50-65	45-60	40-55	40-60	20-40
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
135*:											
Zevadez	0-5	Gravelly loam	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Enko	0-4	Gravelly sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	4-18	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-2, A-4	0	95-100	75-100	60-90	30-65	20-25	5-10
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
141*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Enko	0-4	Fine sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
142*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Dacker	0-7	Silt loam	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
145*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Ocala	0-20	Silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
Moranch	0-5	Silt loam	ML	A-4	0	100	95-100	95-100	80-95	25-35	NP-5
	5-20	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5
	20-61	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
146*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Bloor	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	85-100	70-90	20-30	NP-10
	8-20	Silty clay loam, clay loam.	CL	A-6, A-7	0	100	100	95-100	75-95	35-45	15-25
	20-42	Silt loam	ML	A-4	0	100	100	95-100	75-90	20-25	NP-5
	42-60	Stratified sandy loam to silty clay loam.	CL-ML, ML, SM-SC, SM	A-4	0	80-100	75-100	60-95	45-75	20-30	NP-10
Ocala	0-20	Silty clay loam	CL, ML	A-7	0	100	100	95-100	80-90	40-50	15-20
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
149*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Sonoma	0-11	Silt loam	CL	A-6	0	100	100	100	95-100	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	ML, CL	A-6, A-7	0	100	100	100	95-100	35-50	10-25
151*:											
Dewar	0-5	Gravelly silt loam.	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---
Gance	0-4	Very cobbly loam	CL, GC	A-2, A-6	35-45	50-80	45-75	35-70	25-60	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
151*:											
Wieland	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
152*:											
Dewar	0-5	Gravelly silt loam.	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---
Zevadez	0-5	Gravelly loam----	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2`	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
153*:											
Dewar	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
153*:											
Gance----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
Bilbo----------	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
154*:											
Dewar----------	0-5	Gravelly silt loam.	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Gance----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
161*:											
Sonoma	0-11	Silt loam	CL	A-6	0	100	100	100	95-100	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	ML, CL	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Sonoma	0-11	Silt loam	CL	A-6	0	100	100	100	95-100	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	ML, CL	A-6, A-7	0	100	100	100	95-100	35-50	10-25
162*:											
Sonoma	0-11	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Hussa	0-16	Silt loam	CL-ML, ML	A-4	0	100	95-100	90-95	70-80	25-35	5-10
	16-60	Stratified sandy clay loam to silty clay loam.	CL	A-6, A-7	0	95-100	90-100	80-90	50-80	30-45	10-20
163*:											
Sonoma	0-11	Silty clay loam	CL	A-6, A-7	0	100	100	95-100	80-95	35-50	15-25
	11-62	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Devilsgait	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Sonoma	0-11	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
166*:											
Sonoma	0-11	Silt loam	CL	A-6	0	95-100	95-100	85-100	70-90	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
Devilsgait	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
167*:											
Sonoma	0-11	Silt loam	CL	A-6	0	100	100	100	95-100	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	ML, CL	A-6, A-7	0	100	100	100	95-100	35-50	10-25

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
167*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
171*:											
Hussa	0-16	Silt loam	ML	A-4	0	100	100	85-95	60-75	25-35	NP-10
	16-60	Stratified loam to clay loam.	CL, ML	A-6, A-7	0	100	100	85-95	60-80	30-50	10-20
Ocala	0-20	Silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
Welsum	0-20	Silt loam	CL	A-6	0	100	100	90-100	60-75	30-35	10-15
	20-35	Clay loam, silty clay loam.	CL	A-6	0-10	95-100	85-100	80-95	75-85	35-40	15-20
	35-61	Extremely cobbly loamy sand, very cobbly sand, extremely gravelly sand.	GM, GP-GM, SM, SP-SM	A-1	25-45	30-70	25-65	15-40	5-15	---	NP
172*:											
Hussa	0-4	Silt loam	CL-ML, ML	A-4	0	100	95-100	90-95	70-80	25-35	5-10
	4-60	Stratified sandy clay loam to silty clay loam.	CL	A-6, A-7	0	95-100	90-100	80-90	50-80	30-45	10-20
Halleck	0-9	Silt loam	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
Welsum	0-20	Silt loam	CL	A-6	0	100	100	90-100	60-75	30-35	10-15
	20-35	Clay loam, silty clay loam.	CL	A-6	0-10	95-100	85-100	80-95	75-85	35-40	15-20
	35-61	Extremely cobbly loamy sand, very cobbly sand, extremely gravelly sand.	GM, GP-GM, SM, SP-SM	A-1	25-45	30-70	25-65	15-40	5-15	---	NP
181*:											
Crooked Creek	0-5	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
Crooked Creek	0-7	Silty clay loam	CL	A-6, A-7	0	100	95-100	90-100	80-95	35-45	15-20
	7-40	Silty clay, clay	CL, CH	A-7	0	100	95-100	90-100	75-95	40-55	20-30
	40-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GM, GP-GM	A-1	0-10	25-45	20-40	10-30	5-15	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
181*:											
Ocala----------	0-20	Silt loam--------	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
182*:											
Crooked Creek---	0-5	Silty clay loam	CL	A-6, A-7	0	100	95-100	85-100	80-90	35-45	15-20
	5-38	Silty clay, clay	CL, CH	A-7	0	90-100	80-100	70-90	65-85	40-55	20-25
	38-60	Silty clay loam, clay loam.	CL	A-6, A-7	0	85-100	80-100	75-95	70-90	35-45	15-20
Hussa----------	0-16	Loam-------------	ML	A-4	0	95-100	95-100	85-95	60-75	25-35	NP-10
	16-60	Stratified fine sandy loam to silty clay loam.	CL, ML	A-6, A-7	0	95-100	95-100	85-95	50-80	30-50	10-20
Alburz----------	0-7	Loam-------------	ML, CL-ML	A-4	0	80-100	75-95	70-90	50-65	20-30	NP-10
	7-20	Stratified gravelly coarse sandy loam to gravelly loam.	SM	A-1, A-2	0-5	65-85	50-75	25-50	10-35	15-25	NP-5
	20-60	Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	10-45	20-35	10-30	0-15	0-10	---	NP
183*:											
Crooked Creek---	0-5	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
Welsum----------	0-20	Silt loam--------	CL	A-6	0	100	100	90-100	60-75	30-35	10-15
	20-35	Clay loam, silty clay loam.	CL	A-6	0-10	95-100	85-100	80-95	75-85	35-40	15-20
	35-61	Extremely cobbly loamy sand, very cobbly sand, extremely gravelly sand.	GM, GP-GM, SM, SP-SM	A-1	25-45	30-70	25-65	15-40	5-15	---	NP
184----------	0-5	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
Crooked Creek	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
187*:											
Crooked Creek---	0-7	Silty clay loam	CL	A-6, A-7	0	100	95-100	90-100	80-95	35-45	15-20
	7-40	Silty clay, clay	CL, CH	A-7	0	100	95-100	90-100	75-95	40-55	20-30
	40-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GM, GP-GM	A-1	0-10	25-45	20-40	10-30	5-15	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
187*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Ocala-----------	0-20	Silt loam--------	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	20-50	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	50-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
189*:											
Crooked Creek---	0-7	Silty clay loam	CL	A-6, A-7	0	100	95-100	90-100	80-95	35-45	15-20
	7-40	Silty clay, clay	CL, CH	A-7	0	100	95-100	90-100	75-95	40-55	20-30
	40-60	Stratified very gravelly sandy loam to extremely gravelly sand.	GM, GP-GM	A-1	0-10	25-45	20-40	10-30	5-15	---	NP
Crooked Creek---	0-5	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
191*:											
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
191*:											
Mahala----------	0-4	Very gravelly clay loam.	GC	A-2	0	45-60	35-50	30-45	25-35	35-40	15-20
	4-11	Clay, gravelly clay.	CH	A-7	0	80-100	70-100	70-100	60-90	50-65	25-35
	11-30	Clay, clay loam	CL, CH	A-7	0	80-100	75-100	70-95	60-90	40-65	20-35
	30-34	Weathered bedrock	---	---	---	---	---	---	---	---	---
198*:											
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
200*:											
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
Zevadez---------	0-5	Loam----------	CL-ML, CL	A-4, A-6	0	85-100	75-100	65-95	50-65	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Donna-----------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
201*:											
Hopeka----------	0-8	Very gravelly loam.	GC	A-2	0-15	40-55	25-50	25-45	20-35	25-35	10-15
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cavehill--------	0-3	Very gravelly silt loam.	GM, GM-GC	A-2	0-15	40-55	35-50	30-45	25-35	25-35	5-10
	3-16	Very gravelly silt loam, very cobbly silt loam.	GM-GC, GM	A-2, A-4	10-45	35-70	30-65	25-50	20-45	25-35	5-10
	16-37	Very gravelly loam, very cobbly loam.	GM-GC, GM	A-2, A-4	10-45	35-70	30-65	25-50	20-40	25-35	5-10
	37-41	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
206*:											
Hopeka----------	0-8	Very gravelly loam.	GC	A-2	0-15	40-55	25-50	25-45	20-35	25-35	10-15
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
206*:											
Grina	0-7	Silty clay loam	CL, ML	A-6	0	90-100	80-100	75-95	70-90	35-40	10-15
	7-18	Silty clay loam, silt loam, loam.	CL	A-6	0	90-100	80-100	75-95	60-90	30-40	10-15
	18-35	Weathered bedrock	---	---	---	---	---	---	---	---	---
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
211*:											
McIvey	0-12	Gravelly loam	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Igdell	0-17	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	17-38	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	38-39	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	39-40	Indurated material.	---	---	---	---	---	---	---	---	---
Bilbo	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
212*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Eboda----------	0-9	Gravelly loam----	CL-ML, ML, SM-SC, SM	A-4	0-5	70-85	55-75	50-70	35-60	25-35	5-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Akler----------	0-6	Very cobbly loam	GC	A-6, A-2	25-40	45-70	40-65	35-60	30-40	30-35	10-15
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
213*:											
McIvey----------	0-12	Gravelly silt loam.	GC, SC, CL	A-6	0-10	60-85	50-75	50-70	40-60	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Quarz----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
215*:											
McIvey----------	0-12	Gravelly silt loam.	GC, SC, CL	A-6	0-10	60-85	50-75	50-70	40-60	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Short Creek-----	0-3	Very cobbly loam	GM-GC, SM-SC	A-4	30-55	65-75	60-70	50-65	40-50	25-35	5-10
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30
Cotant----------	0-3	Very cobbly clay loam.	GC, SC	A-6	50-65	60-80	55-75	45-60	40-50	35-40	15-20
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
218*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Stampede--------	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
218*:											
Heechee	0-11	Cobbly loam	CL-ML, CL, SM-SC, SC	A-4, A-6	15-25	80-95	70-80	60-75	45-60	25-35	5-15
	11-33	Very cobbly clay loam, very gravelly sandy clay loam, very cobbly loam.	GC	A-2, A-6	25-50	45-75	35-65	30-60	25-50	30-40	10-20
	33-63	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam, extremely cobbly loam.	GP-GM, GM, GP-GC, GM-GC	A-1, A-2	45-55	30-60	20-50	10-35	5-20	20-30	NP-10
219*:											
McIvey	0-18	Very gravelly loam.	GC	A-2	0-10	35-60	25-50	25-45	15-35	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	10-55	45-60	35-50	35-45	30-45	45-55	20-30
Chen	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tweener	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
221*:											
Enko	0-4	Fine sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
221*:											
Enko	0-4	Very fine sandy loam.	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
222*:											
Enko	0-4	Fine sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Zevadez	0-5	Gravelly loam----	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
223*:											
Enko	0-4	Very fine sandy loam.	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Kelk	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
223*:											
Connel----------	0-7	Loam----------	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	7-20	Loam, very fine sandy loam, silt loam.	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	20-60	Stratified very gravelly coarse sand to extremely gravelly loamy sand.	GP-GM, GP	A-1	0-30	35-55	25-45	10-30	0-10	---	NP
224*:											
Enko----------	0-4	Sandy loam-------	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Enko----------	0-4	Gravelly sandy loam.	SM-SC	A-2	0	60-80	50-75	40-65	15-30	20-25	5-10
	4-18	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-2, A-4	0	95-100	75-100	60-90	30-65	20-25	5-10
225*:											
Enko----------	0-4	Sandy loam-------	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
226*:											
Enko----------	0-4	Loam----------	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Rad----------	0-7	Silt loam--------	ML	A-4	0	100	100	90-100	80-90	30-35	5-10
	7-26	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	95-100	80-95	65-85	30-35	NP-5
	26-56	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-85	25-30	NP-5
	56-62	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	95-100	80-90	65-75	25-30	NP-5
227*:											
Enko----------	0-4	Loam----------	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Wieland----------	0-5	Loam----------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Enko----------	0-4	Very gravelly loam.	GM-GC	A-2, A-4	0	35-55	25-50	20-40	15-40	20-30	5-10
	4-18	Loam, sandy loam	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Loam, fine sandy loam, sandy loam.	SM-SC, CL-ML	A-2, A-4	0	95-100	75-100	60-90	30-65	20-25	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
228*:											
Enko	0-4	Sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
229*:											
Enko	0-4	Loam	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Puett	0-2	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
232*:											
Bioya	0-14	Very fine sandy loam.	ML, CL-ML	A-4	0	100	95-100	80-100	50-80	20-30	NP-10
	14-27	Silt loam, loam	CL, CL-ML	A-6, A-4	0	100	95-100	85-100	50-80	25-35	5-15
	27-41	Indurated material.	---	---	---	---	---	---	---	---	---
	41-60	Fine sandy loam	SM	A-4	0	95-100	90-100	75-85	35-50	20-25	NP-5
Orovada	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
236*:											
Cleavage	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
236*:											
Bullump---------	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
237*:											
Cleavage---------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tweener---------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernog----------	0-10	Gravelly loam----	SM-SC, SC	A-4, A-6	0-5	70-95	55-75	35-65	35-50	25-35	5-15
	10-17	Very stony clay loam, very stony loam.	GC	A-6, A-7	25-30	55-70	50-65	40-55	35-50	30-45	10-20
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
238*:											
Cleavage---------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
238*:											
Tweener---------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Graley----------	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
239*:											
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vitale----------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-1	10-15	35-60	30-55	25-45	20-35	25-35	5-15
	6-23	Very gravelly clay loam, very cobbly clay loam.	GC	A-6, A-2, A-7	10-45	35-65	30-60	30-55	25-45	35-45	15-25
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
240*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
240*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
241*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
242*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
242*:											
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lyra----------	0-2	Gravelly loam----	GM-GC, GC, CL-ML, CL	A-2, A-4, A-6	0-10	55-80	50-75	40-70	25-60	25-35	5-15
	2-7	Very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	10-30	30-40	25-35	20-30	20-30	35-45	15-20
	7-12	Extremely cobbly clay, extremely cobbly clay loam.	GC, GP-GC	A-2	50-60	30-40	10-30	5-30	5-30	35-50	15-30
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
243*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey----------	0-18	Very gravelly loam.	GC	A-2	0-10	35-60	25-50	25-45	15-35	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	10-55	45-60	35-50	35-45	30-45	45-55	20-30

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
244*:											
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Eboda	0-9	Loam	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
245*:											
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Glean	0-7	Gravelly silt loam.	GM, SM, ML	A-4	0-10	55-80	50-75	45-65	40-55	20-30	NP-5
	7-25	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-25	30-65	25-60	20-50	10-35	20-30	NP-5
	25-60	Very cobbly sandy loam, very cobbly loam, very gravelly sandy loam.	GM, SM	A-1, A-2	20-45	45-70	40-65	30-55	15-25	20-30	NP-5
	60-64	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Inpendence	0-9	Gravelly loam	SM	A-4	0	70-85	55-70	45-60	35-50	20-30	NP-5
	9-60	Very gravelly loam, extremely gravelly loam, extremely gravelly sandy loam.	GM	A-1, A-2	0-25	35-65	25-55	20-40	10-30	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
247*:											
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
248*:											
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tweener	0-4	Very gravelly sandy loam.	GM-GC	A-2	5-15	35-55	30-50	15-35	10-20	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lerrow	0-5	Gravelly loam----	SC	A-6	0-10	70-80	60-75	55-65	40-50	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
251*:											
Ocala	0-20	Silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-60	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
Devilsgait	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
256*:											
Ocala	0-20	Silt loam	ML, CL	A-4, A-6	0	100	100	90-100	70-80	30-40	5-15
	20-50	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	50-60	Stratified gravelly very fine sandy loam to silt loam.	GM, SM, ML	A-4	0	55-90	55-85	50-75	35-55	---	NP
Ocala	0-20	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	20-50	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	50-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20
258*:											
Ocala	0-20	Silt loam	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
Devilsgait	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Devilsgait	0-8	Very fine sandy loam.	CL-ML, ML	A-4	0	100	100	90-95	65-80	20-30	NP-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
259*:											
Ocala	0-20	Silt loam	ML, CL	A-4, A-6	0	100	100	95-100	85-95	30-40	5-15
	20-50	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	50-60	Silt loam, silty clay loam.	ML, CL	A-6, A-7	0	90-100	90-100	90-95	85-90	30-50	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
259*:											
Sonoma----------	0-11	Silt loam--------	CL	A-6	0	100	100	100	95-100	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	ML, CL	A-6, A-7	0	100	100	100	95-100	35-50	10-25
260*:											
Ocala----------	0-20	Silt loam--------	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
Halleck---------	0-9	Silt loam--------	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
261*:											
Linkup----------	0-3	Very cobbly loam	GM-GC	A-2, A-4	30-45	50-75	45-70	35-60	25-50	20-30	5-10
	3-8	Cobbly clay loam, very cobbly clay loam, cobbly clay.	CL	A-6, A-7	25-45	80-100	75-90	70-80	55-70	35-50	15-25
	8-16	Clay, cobbly clay	CH	A-7	0-40	90-100	85-100	75-90	70-80	50-60	25-35
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Roca----------	0-5	Very gravelly loam.	GC	A-2	0-10	35-60	30-50	25-40	20-35	25-35	10-15
	5-29	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-15	60-75	40-50	30-45	25-35	45-60	25-35
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vanwyper--------	0-8	Very cobbly loam	SC	A-2, A-6	30-45	70-80	55-65	40-55	30-40	25-35	10-15
	8-39	Very cobbly clay loam, very cobbly clay.	GC, CL, CH	A-7	35-55	55-75	50-65	45-60	40-55	40-60	20-40
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
262*:											
Linkup----------	0-3	Cobbly loam------	CL-ML	A-4	15-30	75-95	70-90	60-80	50-60	20-30	5-10
	3-8	Cobbly clay loam, very cobbly clay loam, cobbly clay.	CL	A-6, A-7	25-45	80-100	75-90	70-80	55-70	35-50	15-25
	8-16	Clay, cobbly clay	CH	A-7	0-40	90-100	85-100	75-90	70-80	50-60	25-35
	16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
262*:											
Roca----------	0-5	Very gravelly loam.	GC	A-2	0-10	35-60	30-50	25-40	20-35	25-35	10-15
	5-29	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-15	60-75	40-50	30-45	25-35	45-60	25-35
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
271*:											
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Shivlum---------	0-9	Silt loam--------	CL-ML	A-4	0	100	100	70-80	60-80	25-30	5-10
	9-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	10-20
	34-60	Clay loam--------	CL	A-7	0	100	100	85-95	65-75	40-45	15-20
272*:											
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
282*:											
Bloor----------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	85-100	70-90	20-30	NP-10
	8-20	Silty clay loam, clay loam.	CL	A-6, A-7	0	100	100	95-100	75-95	35-45	15-25
	20-42	Silt loam--------	ML	A-4	0	100	100	95-100	75-90	20-25	NP-5
	42-60	Stratified sandy loam to silty clay loam.	CL-ML, ML, SM-SC, SM	A-4	0	80-100	75-100	60-95	45-75	20-30	NP-10
Enko----------	0-4	Fine sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
283*:											
Bloor----------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	85-100	70-90	20-30	NP-10
	8-20	Silty clay loam, clay loam.	CL	A-6, A-7	0	100	100	95-100	75-95	35-45	15-25
	20-42	Silt loam--------	ML	A-4	0	100	100	95-100	75-90	20-25	NP-5
	42-60	Stratified sandy loam to silty clay loam.	CL-ML, ML, SM-SC, SM	A-4	0	80-100	75-100	60-95	45-75	20-30	NP-10
Connel----------	0-7	Loam-------------	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	7-20	Loam, very fine sandy loam, silt loam.	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	20-60	Stratified very gravelly coarse sand to extremely gravelly loamy sand.	GP-GM, GP	A-1	0-30	35-55	25-45	10-30	0-10	---	NP
Kelk----------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
291*:											
Tweba----------	0-19	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-95	50-65	20-30	NP-10
	19-34	Fine sandy loam, very fine sandy loam, loam.	ML	A-4	0	100	100	80-95	50-65	20-25	NP-5
	34-60	Stratified very fine sandy loam to loamy sand.	SM	A-2, A-4	0	90-100	90-100	55-75	25-45	---	NP
Moranch---------	0-5	Silt loam--------	ML	A-4	0	100	95-100	95-100	80-95	25-35	NP-5
	5-20	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5
	20-61	Silt loam, very fine sandy loam.	ML	A-4	0	100	95-100	95-100	75-95	25-35	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
294*:											
Sonoma Variant--	0-2	Silt loam--------	CL, CL-ML	A-6, A-4	0	80-100	75-100	70-90	60-85	25-35	5-15
	2-29	Loam, sandy loam, silt loam.	CL-ML, ML	A-4	0	90-100	85-100	75-95	50-65	20-30	NP-10
	29-61	Stratified extremely gravelly coarse sand to very gravelly loamy sand.	GP, GP-GM	A-1	0-15	20-40	15-35	10-25	0-10	---	NP
Halleck---------	0-9	Silt loam--------	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
303*:											
Akler-----------	0-6	Very cobbly loam	GC	A-6, A-2	25-40	45-70	40-65	35-60	30-40	30-35	10-15
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
304*:											
Akler-----------	0-6	Cobbly clay loam	CL	A-6	15-40	85-95	80-90	70-80	50-70	35-40	15-20
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
304*:											
Yuko	0-2	Very gravelly loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Welch	0-9	Silt loam	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
305*:											
Akler	0-6	Gravelly clay loam.	GC, SC, CL	A-6	0-10	55-80	50-75	40-70	35-55	35-40	15-20
	6-17	Gravelly clay	GC, CH	A-7	0-10	55-80	50-75	40-70	40-70	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
Kleckner	0-9	Gravelly loam	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
Short Creek	0-3	Very cobbly loam	GM-GC, SM-SC	A-4	30-55	65-75	60-70	50-65	40-50	25-35	5-10
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30
306*:											
Akler	0-6	Extremely cobbly loam.	GC	A-2	40-45	30-45	25-40	20-35	15-30	30-40	10-15
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
Quarz	0-4	Cobbly loam	CL	A-6	25-30	85-95	80-90	60-70	50-60	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
306*:											
Soughe----------	0-4	Very cobbly loam	GM-GC, GM	A-4	30-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
307*:											
Akler----------	0-6	Loam----------	CL, SC	A-6	0-10	80-90	75-85	65-80	45-65	30-35	10-15
	6-17	Clay----------	CH	A-7	0	80-100	75-100	65-90	50-70	55-70	30-45
	17-28	Weathered bedrock	---	---	---	---	---	---	---	---	---
Lerrow----------	0-5	Gravelly loam----	SC	A-6	0-10	70-80	60-75	55-65	40-50	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
309*:											
Akler----------	0-6	Extremely cobbly loam.	GC	A-2	40-45	30-45	25-40	20-35	15-30	30-40	10-15
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
Vanwyper--------	0-10	Gravelly loam----	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
311*:											
Shayla----------	0-5	Very gravelly silty clay loam.	GC	A-7	0-5	45-55	40-50	40-50	35-45	40-45	15-20
	5-13	Very gravelly silty clay loam, very gravelly silt loam.	GC, GM	A-2, A-6, A-7	0	35-50	25-40	20-40	20-40	35-45	10-20
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
Dewar----------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
311*:											
Vanwyper--------	0-10	Gravelly loam----	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
321*:											
Grina-----------	0-7	Loam----------	CL-ML	A-4	0	90-100	80-100	75-90	60-80	20-30	5-10
	7-18	Silty clay loam, silt loam, loam.	CL	A-6	0	90-100	80-100	75-95	60-90	30-40	10-15
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Lyra----------	0-2	Gravelly loam----	GM-GC, GC, CL-ML, CL	A-2, A-4, A-6	0-10	55-80	50-75	40-70	25-60	25-35	5-15
	2-7	Very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	10-30	30-40	25-35	20-30	20-30	35-45	15-20
	7-12	Extremely cobbly clay, extremely cobbly clay loam.	GC, GP-GC	A-2	50-60	30-40	10-30	5-30	5-30	35-50	15-30
	12	Weathered bedrock	---	---	---	---	---	---	---	---	---
Loncan Variant--	0-12	Loam----------	CL	A-6	0	95-100	95-100	80-95	60-75	25-35	10-15
	12-38	Stratified loam to clay loam.	CL	A-6	0	95-100	90-100	80-100	60-75	25-35	10-15
	38-60	Loam----------	CL	A-6	0	95-100	90-100	80-95	60-75	25-35	10-15
322*:											
Grina-----------	0-7	Loam----------	CL-ML	A-4	0	90-100	80-100	75-90	60-80	20-30	5-10
	7-18	Silty clay loam, silt loam, loam.	CL	A-6	0	90-100	80-100	75-95	60-90	30-40	10-15
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Enko----------	0-4	Sandy loam-------	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
Enko----------	0-4	Loam----------	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
323*:											
Grina	0-7	Gravelly loam	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	7-18	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Orovada	0-7	Silt loam	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
324*:											
Grina	0-7	Silty clay loam	CL, ML	A-6	0	90-100	80-100	75-95	70-90	35-40	10-15
	7-18	Silty clay loam, silt loam, loam.	CL	A-6	0	90-100	80-100	75-95	60-90	30-40	10-15
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Samor	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
325*:											
Grina	0-7	Gravelly loam	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	7-18	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---
Karpp	0-7	Silt loam	CL	A-6	0-5	80-100	75-90	70-90	55-75	25-35	10-15
	7-15	Very gravelly silt loam.	GC	A-6, A-2	0-15	30-60	25-50	25-50	20-45	25-35	10-15
	15-41	Indurated material.	---	---	---	---	---	---	---	---	---
Rad	0-7	Silt loam	ML	A-4	0	100	100	90-100	80-90	30-35	5-10
	7-26	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	95-100	80-95	65-85	30-35	NP-5
	26-56	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-85	25-30	NP-5
	56-62	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	95-100	80-90	65-75	25-30	NP-5
331*:											
Bunky	0-9	Loam	CL-ML	A-4	0	85-95	75-90	65-80	50-60	25-30	5-10
	9-21	Loam, gravelly loam.	SM-SC, CL-ML	A-4	0	70-100	60-100	55-80	35-60	25-30	5-10
	21-60	Cemented material	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
331*:											
Grina	0-7	Silty clay loam	CL, ML	A-6	0	90-100	80-100	75-95	70-90	35-40	10-15
	7-18	Silty clay loam, silt loam, loam.	CL	A-6	0	90-100	80-100	75-95	60-90	30-40	10-15
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Enko	0-4	Sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
345*:											
Perwick	0-5	Gravelly loam	GM-GC, SM-SC	A-4	0	55-80	50-75	45-60	40-50	20-30	5-10
	5-24	Fine sandy loam, sandy loam, loam.	SM, ML	A-2, A-4	0	95-100	80-90	60-75	30-60	20-25	NP-5
	24-28	Weathered bedrock	---	---	---	---	---	---	---	---	---
Puett	0-1	Gravelly loam	GM-GC, SM-SC	A-4	0-5	65-85	55-75	50-70	35-50	20-30	5-10
	1-10	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	10-14	Weathered bedrock	---	---	---	---	---	---	---	---	---
Rad	0-7	Silt loam	ML	A-4	0	100	100	90-100	80-90	30-35	5-10
	7-26	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	95-100	80-95	65-85	30-35	NP-5
	26-56	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-85	25-30	NP-5
	56-62	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	95-100	80-90	65-75	25-30	NP-5
367*:											
Peeko	0-5	Silt loam	CL, CL-ML	A-6, A-4	0-10	80-95	75-90	70-90	60-80	25-35	5-15
	5-8	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	10-15	60-90	55-80	50-75	45-65	25-35	5-15
	8-11	Very gravelly silt loam, very cobbly silt loam, gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	0-45	50-80	45-75	40-75	35-60	25-35	5-15
	11-36	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
367*:											
Hunnton	0-6	Loam	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Puett	0-2	Sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
370*:											
Chiara	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Cherry Spring	0-10	Silt loam	ML	A-4	0	95-100	95-100	85-95	70-80	20-25	NP-5
	10-23	Loam, silt loam, clay loam.	CL-ML, CL	A-4, A-6	0-5	90-100	80-95	75-90	65-75	25-40	5-20
	23-41	Cemented material	---	---	---	---	---	---	---	---	---
	41-63	Stratified sandy loam to extremely gravelly sandy loam.	GM	A-1	0-5	40-55	35-50	30-40	15-25	---	NP
Orovada	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
371*:											
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
371*:											
Bioya----------	0-14	Very fine sandy loam.	ML, CL-ML	A-4	0	100	95-100	80-100	50-80	20-30	NP-10
	14-27	Silt loam, loam	CL, CL-ML	A-6, A-4	0	100	95-100	85-100	50-80	25-35	5-15
	27-41	Indurated material.	---	---	---	---	---	---	---	---	---
	41-60	Fine sandy loam	SM	A-4	0	95-100	90-100	75-85	35-50	20-25	NP-5
374*:											
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Wieland---------	0-5	Loam----------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Enko----------	0-4	Fine sandy loam	SM-SC	A-4	0	95-100	85-100	60-75	35-50	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
378*:											
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Spilock---------	0-4	Very gravelly loam.	GM-GC	A-2	0	30-55	25-50	20-40	20-30	25-30	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC	A-2	0	25-40	20-35	15-30	15-25	25-30	5-10
	10-30	Indurated material.	---	---	---	---	---	---	---	---	---
Kelk----------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
379*:											
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	75-90	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	90-100	80-95	25-35	5-15
380*:											
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Peeko	0-5	Silt loam	CL, CL-ML	A-6, A-4	0-10	80-95	75-90	70-90	60-80	25-35	5-15
	5-8	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	10-15	60-90	55-80	50-75	45-65	25-35	5-15
	8-11	Very gravelly silt loam, very cobbly silt loam, gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	0-45	50-80	45-75	40-75	35-60	25-35	5-15
	11-36	Indurated material.	---	---	---	---	---	---	---	---	---
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
400*:											
Bilbo	0-4	Gravelly loam	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
400*:											
Gance----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
403*:											
Bilbo----------	0-4	Gravelly loam----	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
Shivlum---------	0-9	Silt loam--------	CL-ML	A-4	0	100	100	70-80	60-80	25-30	5-10
	9-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	10-20
	34-60	Clay loam--------	CL	A-7	0	100	100	85-95	65-75	40-45	15-20
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
411*:											
Bilbo	0-4	Gravelly loam	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
Wieland	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Soughe	0-4	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-10	40-60	30-50	25-35	20-35	20-30	NP-10
	4-14	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
413*:											
Vanwyper	0-10	Gravelly loam	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bilbo	0-4	Gravelly loam	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
413*:											
Soughe----------	0-4	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-10	40-60	30-50	25-35	20-35	20-30	NP-10
	4-14	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14-18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
414*:											
Vanwyper--------	0-10	Gravelly loam----	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loomis----------	0-2	Very cobbly loam	GC, SC	A-6, A-2	30-55	60-80	50-65	40-60	25-50	30-35	10-15
	2-7	Very cobbly clay loam.	GC	A-7	30-40	55-70	50-65	35-50	35-45	40-50	20-25
	7-11	Very cobbly clay, very gravelly clay.	GC	A-7, A-2	0-55	35-70	30-50	25-50	25-50	50-60	25-35
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
415*:											
Vanwyper--------	0-10	Very gravelly loam.	GC	A-2	0-10	35-55	30-50	25-45	20-35	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Akler-----------	0-6	Cobbly clay loam	CL	A-6	15-40	85-95	80-90	70-80	50-70	35-40	15-20
	6-17	Clay, gravelly clay.	CH, GC	A-7	0-10	55-90	50-85	40-80	40-75	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
Eboda-----------	0-9	Loam-------------	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
416*:											
Vanwyper--------	0-10	Very gravelly loam.	GC	A-2	0-10	35-55	30-50	25-45	20-35	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
416*:											
Roca	0-5	Very gravelly loam.	GC	A-2	0-10	35-60	30-50	25-40	20-35	25-35	10-15
	5-29	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-15	60-75	40-50	30-45	25-35	45-60	25-35
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
417*:											
Vanwyper	0-8	Very cobbly loam	SC	A-2, A-6	30-45	70-80	55-65	40-55	30-40	25-35	10-15
	8-39	Very cobbly clay loam, very cobbly clay.	GC, CL, CH	A-7	35-55	55-75	50-65	45-60	40-55	40-60	20-40
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Linkup	0-3	Very gravelly loam.	GM-GC	A-2	0-15	40-60	30-50	25-50	20-35	20-30	5-10
	3-8	Clay loam, gravelly clay loam, gravelly clay.	CL, GC	A-6, A-7	0-10	55-100	50-90	45-80	40-75	35-50	15-25
	8-16	Clay, gravelly clay.	CH, GC	A-7	0-10	55-100	50-90	45-85	40-80	50-60	25-35
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loomis	0-2	Very cobbly loam	GC, SC	A-6, A-2	30-55	60-80	50-65	40-60	25-50	30-35	10-15
	2-7	Very cobbly clay loam.	GC	A-7	30-40	55-70	50-65	35-50	35-45	40-50	20-25
	7-11	Very cobbly clay, very gravelly clay.	GC	A-7, A-2	0-55	35-70	30-50	25-50	25-50	50-60	25-35
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
418*:											
Vanwyper	0-4	Very gravelly loamy coarse sand.	GP-GM, GM	A-1	0-5	35-55	25-40	15-30	5-15	---	NP
	4-24	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	24-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Connel	0-7	Fine sandy loam	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	7-20	Loam, very fine sandy loam, silt loam.	ML	A-4	0	85-100	75-100	70-90	50-70	20-25	NP-5
	20-60	Stratified very gravelly coarse sand to extremely gravelly loamy sand.	GP-GM, GP	A-1	0-30	35-55	25-45	10-30	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
418*:											
Hunewill--------	0-7	Gravelly coarse sandy loam.	GM, SM	A-1	0-5	55-80	50-75	30-45	15-25	---	NP
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
431*:											
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
Shayla----------	0-5	Very gravelly silty clay loam.	GC	A-7	0-5	45-55	40-50	40-50	35-45	40-45	15-20
	5-13	Very gravelly silty clay loam, very gravelly silt loam.	GC, GM	A-2, A-6, A-7	0	35-50	25-40	20-40	20-40	35-45	10-20
	13	Weathered bedrock	---	---	---	---	---	---	---	---	---
Roca----------	0-5	Very gravelly loam.	GC	A-2	0-10	35-60	30-50	25-40	20-35	25-35	10-15
	5-29	Very gravelly clay loam, very gravelly clay.	GC, SC	A-2	0-15	60-75	40-50	30-45	25-35	45-60	25-35
	29	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
432*:											
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
432*:											
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Hunnton---------	0-6	Silt loam--------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
440*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Woofus----------	0-8	Silty clay loam	CL	A-6	0	100	100	85-100	80-95	35-40	15-20
	8-30	Stratified loam to silty clay loam.	CL	A-6	0	100	85-100	70-90	55-85	30-40	10-20
	30-60	Stratified loamy fine sand to gravelly coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	60-100	55-100	30-70	5-25	---	NP
Devilsgait------	0-13	Silt loam--------	CL	A-6	0	100	100	90-100	75-95	25-35	10-15
	13-42	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	42-54	Stratified gravelly silt loam to silty clay loam.	CL, ML	A-6, A-7	0	85-95	80-90	75-90	65-85	30-50	10-20
	54-63	Extremely gravelly coarse sand.	GP	A-1	0-10	25-40	15-30	10-15	0-5	---	NP
441*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-95	65-80	20-30	NP-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
441*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Ocala-----------	0-20	Silt loam--------	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
442*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Crooked Creek---	0-5	Silty clay loam	CL	A-6, A-7	0	100	95-100	85-100	80-90	35-45	15-20
	5-38	Silty clay, clay	CL, CH	A-7	0	90-100	80-100	70-90	65-85	40-55	20-25
	38-60	Silty clay loam, clay loam.	CL	A-6, A-7	0	85-100	80-100	75-95	70-90	35-45	15-20
443*:											
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SM-SC, SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
Sonoma----------	0-11	Silt loam--------	CL	A-6	0	100	100	85-100	70-90	30-35	10-15
	11-62	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	100	95-100	35-50	10-25
447--------------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
Donna	10-23	Clay-------------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
448*:											
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Stampede	0-11	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
449*:											
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Stampede	0-11	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Short Creek	0-3	Gravelly clay loam.	GC, SC	A-6	0-15	60-80	50-75	45-65	35-50	35-40	20-25
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
452*:											
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Bilbo	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
Stampede	0-11	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
454*:											
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Short Creek	0-3	Very cobbly loam	GM-GC, GM, SM-SC, SM	A-4	30-55	65-75	60-70	50-65	40-50	25-35	5-10
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
454*:											
Kleckner--------	0-9	Gravelly silt loam.	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
455*:											
Donna-----------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Kleckner--------	0-9	Gravelly silt loam.	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
Donna-----------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
456*:											
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Stampede	0-11	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Gance	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
457*:											
Donna	0-10	Very cobbly loam	GC	A-2, A-6	25-45	50-70	45-65	40-60	30-50	25-35	10-15
	10-23	Clay	CH	A-7	0	80-90	75-90	70-85	65-85	65-75	35-45
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified very gravelly sandy loam to very gravelly sandy clay loam.	GC	A-2	0	40-55	35-50	20-45	15-25	25-35	10-15
Gochea	0-7	Loam	CL-ML	A-4	0	80-100	75-95	60-75	50-65	20-30	5-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, GM, SM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
457*:											
Kleckner--------	0-9	Very cobbly loam	SC, GC, GM-GC, SM-SC	A-6, A-4	30-40	55-75	50-70	45-65	35-45	25-35	5-15
	9-25	Very cobbly clay, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	10-45	45-70	40-55	35-50	30-45	40-55	25-35
	25-41	Gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GC, GM-GC, CL-ML, CL	A-6, A-4	0-5	65-90	60-85	50-75	40-60	25-35	5-15
460*:											
Stampede--------	0-11	Loam----------	CL	A-6	0	80-100	75-95	60-80	50-70	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Betra-----------	0-5	Cobbly loam------	CL	A-6	15-25	80-95	70-85	65-80	50-65	25-30	10-15
	5-9	Very gravelly clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-15	55-75	40-75	35-60	30-50	35-40	15-20
	9-21	Very gravelly clay, very cobbly clay.	GC, CH	A-7, A-2	10-45	45-70	35-60	30-60	30-55	55-65	35-45
	21-42	Cemented material	---	---	---	---	---	---	---	---	---
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
461*:											
Stampede--------	0-11	Loam----------	CL	A-6	0	80-100	75-95	60-80	50-70	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
461*:											
Kleckner--------	0-9	Gravelly silt loam.	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
462*:											
Stampede--------	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Donna-----------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay-------------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Bilbo-----------	0-4	Gravelly loam----	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
465*:											
Stampede--------	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
465*:											
Gochea----------	0-7	Gravelly loam----	GM-GC, SM-SC, GM, SM	A-2, A-4	0	55-80	50-75	30-55	25-50	20-30	NP-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, SM, GM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Zevadez----------	0-5	Gravelly loam----	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
466*:											
Stampede---------	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Bilbo------------	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
467*:											
Stampede---------	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Donna------------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
467*:											
Gance	0-4	Very cobbly loam	CL, GC	A-2, A-6	35-45	50-80	45-75	35-70	25-60	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
469*:											
Stampede	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Donna	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
470*:											
Stampede	0-11	Gravelly loam----	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
Puett	0-2	Gravelly fine sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
Peeko	0-5	Silt loam--------	CL, CL-ML	A-6, A-4	0-10	80-95	75-90	70-90	60-80	25-35	5-15
	5-8	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	10-15	60-90	55-80	50-75	45-65	25-35	5-15
	8-11	Very gravelly silt loam, very cobbly silt loam, gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-6, A-4	0-45	50-80	45-75	40-75	35-60	25-35	5-15
	11-36	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
477*:											
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
478*:											
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Wieland---------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
478*:											
Bilbo----------	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
479*:											
Hunnton----------	0-6	Silt loam--------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Wieland----------	0-5	Silt loam--------	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Bloor----------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	85-100	70-90	20-30	NP-10
	8-20	Silty clay loam, clay loam.	CL	A-6, A-7	0	100	100	95-100	75-95	35-45	15-25
	20-42	Silt loam--------	ML	A-4	0	100	100	95-100	75-90	20-25	NP-5
	42-60	Stratified sandy loam to silty clay loam.	CL-ML, ML, SM-SC, SM	A-4	0	80-100	75-100	60-95	45-75	20-30	NP-10
480*:											
Hunnton----------	0-6	Loam-------------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
480*:											
Wieland---------	0-5	Loam----------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
481*:											
Hunnton---------	0-6	Silt loam--------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-20	Indurated material.	---	---	---	---	---	---	---	---	---
482*:											
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
482*:											
Wieland---------	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Hunnton---------	0-14	Gravelly loam----	GC, CL	A-6	0-5	60-75	55-70	50-65	45-55	25-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	30-50	20-45	15-35	5-20	---	NP
485*:											
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Wieland---------	0-5	Silt loam--------	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Wieland---------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
486*:											
Hunnton---------	0-6	Silt loam--------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Wieland---------	0-5	Silt loam--------	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
489*:											
Hunnton---------	0-6	Loam-------------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Wieland---------	0-5	Loam-------------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
489*:											
Bioya----------	0-14	Loam----------	ML, CL-ML	A-4	0	100	95-100	80-100	50-80	20-30	NP-10
	14-27	Silt loam, loam	CL, CL-ML	A-6, A-4	0	100	95-100	85-100	50-80	25-35	5-15
	27-41	Indurated material.	---	---	---	---	---	---	---	---	---
	41-60	Fine sandy loam	SM	A-4	0	95-100	90-100	75-85	35-50	20-25	NP-5
490*:											
Orovada----------	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Bioya----------	0-14	Very fine sandy loam.	ML, CL-ML	A-4	0	100	95-100	80-100	50-80	20-30	NP-10
	14-27	Silt loam, loam	CL, CL-ML	A-6, A-4	0	100	95-100	85-100	50-80	25-35	5-15
	27-41	Indurated material.	---	---	---	---	---	---	---	---	---
	41-60	Fine sandy loam	SM	A-4	0	95-100	90-100	75-85	35-50	20-25	NP-5
Haybourne-------	0-6	Sandy loam-------	SM	A-2, A-4	0	80-90	75-85	40-50	30-40	---	NP
	6-35	Sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2	0	75-100	70-100	50-60	25-35	20-25	NP-5
	35-60	Stratified gravelly coarse sand to fine sandy loam.	SM	A-1, A-2	0	90-100	75-100	45-55	15-30	---	NP
491*:											
Orovada----------	0-7	Loam----------	ML	A-4	0	95-100	90-100	80-95	60-75	25-35	NP-5
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Puett----------	0-2	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
492*:											
Orovada----------	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
492*:											
Humdun----------	0-7	Loam----------	ML	A-4	0	100	100	75-85	65-75	20-30	NP-5
	7-29	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
	29-63	Loam, very fine sandy loam, silt loam.	ML	A-4	0	100	100	85-95	60-80	30-40	NP-10
Puett----------	0-2	Fine sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
494*:											
Orovada----------	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Puett----------	0-2	Sandy loam-------	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
496*:											
Orovada----------	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
Grina----------	0-7	Gravelly loam----	SM-SC, SC	A-4, A-6	0-5	70-85	55-70	45-60	35-50	25-35	5-15
	7-18	Loam, silt loam, silty clay loam.	CL	A-6, A-7	0	90-100	80-100	75-95	60-85	30-45	10-20
	18-22	Weathered bedrock	---	---	---	---	---	---	---	---	---
Upsteer----------	0-11	Silt loam--------	ML	A-4	0	95-100	90-100	80-100	80-100	30-35	5-10
	11-35	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	95-100	95-100	95-100	80-100	30-45	5-20
	35-61	Loam, silt loam	ML	A-4	0	100	90-100	90-95	75-90	30-35	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
501*:											
Short Creek-----	0-3	Gravelly clay loam.	GC, SC	A-6	0-15	60-80	50-75	45-65	35-50	35-40	20-25
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30
Short Creek-----	0-3	Gravelly clay loam.	GC, SC	A-6	0-15	60-80	50-75	45-65	35-50	35-40	20-25
	3-45	Very gravelly clay.	GC	A-2, A-7	0-10	45-55	35-50	35-45	30-40	50-55	35-40
	45-64	Extremely gravelly sandy clay, extremely gravelly clay loam, extremely gravelly sandy clay loam.	GP-GC, GC	A-2	0-15	30-35	15-25	15-20	5-15	35-45	20-30
511*:											
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Gance-----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
Kelk------------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
512*:											
Dacker	0-7	Silt loam	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Zevadez	0-5	Loam	CL-ML, CL	A-4, A-6	0	85-100	75-100	65-95	50-65	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
513*:											
Dacker	0-7	Silt loam	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Dewar	0-5	Gravelly silt loam.	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
513*:											
Hunewill--------	0-7	Gravelly sandy loam.	GM, SM	A-1	0-5	55-80	50-75	30-45	15-25	---	NP
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
516*:											
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Yuko----------	0-2	Very gravelly loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Wieland---------	0-5	Loam----------	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
521*:											
Norfork---------	0-2	Very cobbly silt loam.	GM-GC, GC	A-6, A-4	30-45	50-65	45-60	45-55	40-50	25-35	5-15
	2-12	Gravelly silty clay, cobbly silty clay loam, gravelly silty clay loam.	CL, CH	A-7	10-25	60-80	55-75	50-75	50-70	40-60	20-35
	12-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
521*:											
Loomis----------	0-2	Very cobbly loam	GC, SC	A-6, A-2	30-55	60-80	50-65	40-60	25-50	30-35	10-15
	2-7	Very cobbly clay loam.	GC	A-7	30-40	55-70	50-65	35-50	35-45	40-50	20-25
	7-11	Very cobbly clay, very gravelly clay.	GC	A-7, A-2	0-55	35-70	30-50	25-50	25-50	50-60	25-35
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
530*:											
Upville---------	0-10	Gravelly loam----	SM-SC, CL-ML	A-4	0-10	70-90	60-85	55-80	40-65	25-30	5-10
	10-19	Very gravelly loam, gravelly coarse sandy loam, very gravelly sandy loam.	GM-GC, SM-SC, GC, SC	A-2, A-4, A-6	0-20	45-80	40-75	35-65	30-50	25-35	5-15
	19-61	Extremely gravelly coarse sand, extremely cobbly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	25-50	15-40	10-35	10-25	0-10	---	NP
Connel----------	0-7	Gravelly loam----	GM, SM	A-4	0	65-85	55-75	45-60	35-50	20-25	NP-5
	7-20	Loam-------------	ML	A-4	0	85-100	75-100	60-75	55-70	20-25	NP-5
	20-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-10	15-55	10-45	5-35	0-10	---	NP
Halleck---------	0-9	Silt loam--------	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
540*:											
Gando----------	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
540*:											
Inpendence------	0-9	Gravelly loam----	SM	A-4	0	70-85	55-70	45-60	35-50	20-30	NP-5
	9-60	Very gravelly loam, extremely gravelly loam, extremely gravelly sandy loam.	GM	A-1, A-2	0-25	35-65	25-55	20-40	10-30	20-30	NP-5
Bullump---------	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
570*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
571*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel----------	0-19	Gravelly loam----	SM, GM	A-4	0-10	55-80	50-75	45-70	35-50	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando----------	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
572*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Shivlum---------	0-9	Silt loam--------	CL-ML	A-4	0	100	100	70-80	60-80	25-30	5-10
	9-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	10-20
	34-60	Clay loam--------	CL	A-7	0	100	100	85-95	65-75	40-45	15-20
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
573*:											
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hackwood	0-20	Silt loam	CL-ML, CL	A-4, A-6	0	80-100	75-100	70-90	60-80	20-35	5-15
	20-30	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20
Gando	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
574*:											
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
574*:											
Cleavage	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
575*:											
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hackwood	0-20	Silt loam	CL-ML, CL	A-4, A-6	0	80-100	75-100	70-90	60-80	20-35	5-15
	20-30	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20
576*:											
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
576*:											
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
577*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel-----------	0-19	Very gravelly loam.	GM	A-1, A-2	0-15	50-60	40-50	35-45	25-35	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
578*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel----------	0-19	Extremely gravelly loam.	GM	A-1, A-2	0-15	30-40	20-25	15-25	10-20	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood----------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
579*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
579*:											
Tusel	0-19	Very gravelly loam.	GM	A-2	0-15	50-60	40-50	35-45	25-35	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
580*:											
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
582*:											
Sumine	0-6	Extremely stony loam.	SM-SC	A-4	25-35	75-85	65-75	45-60	35-50	25-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6	15-40	45-70	35-65	30-50	30-45	30-40	10-20
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
582*:											
Vitale----------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-1	10-15	35-60	30-55	25-45	20-35	25-35	5-15
	6-23	Very gravelly clay loam, very cobbly clay loam.	GC	A-6, A-2, A-7	10-45	35-65	30-60	30-55	25-45	35-45	15-25
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bullvaro--------	0-15	Loam----------	ML	A-4	0	80-100	75-100	60-85	50-70	20-25	NP-5
	15-23	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	55-80	50-75	40-60	35-50	25-35	5-15
	23-37	Extremely gravelly loam.	GM-GC, GC	A-2	0-5	20-35	15-25	15-20	10-20	25-35	5-15
	37-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	0-10	20-35	15-25	10-20	5-15	20-25	NP-5
583*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
584*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
584*:											
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
585*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
586*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
587*:											
Sumine----------	0-6	Gravelly loam----	GM, SM	A-2, A-4	0	55-80	50-75	35-70	25-50	20-25	NP-5
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bullvaro--------	0-15	Loam----------	ML	A-4	0	80-100	75-100	60-85	50-70	20-25	NP-5
	15-23	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	55-80	50-75	40-60	35-50	25-35	5-15
	23-37	Extremely gravelly loam.	GM-GC, GC	A-2	0-5	20-35	15-25	15-20	10-20	25-35	5-15
	37-60	Extremely gravelly sandy loam.	GP-GM, GM	A-1	0-10	20-35	15-25	10-20	5-15	20-25	NP-5
Hackwood--------	0-20	Silt loam--------	CL-ML, CL	A-4, A-6	0	80-100	75-100	70-90	60-80	20-35	5-15
	20-30	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
590*:											
Bucan	0-11	Gravelly loam	GC, SC	A-6	0	65-80	60-75	55-65	35-50	30-35	10-15
	11-30	Clay	CH	A-7	0-5	90-95	85-95	75-85	65-75	50-65	35-45
	30-57	Gravelly clay, gravelly clay loam, cobbly clay.	CL	A-7	0-15	70-95	60-90	55-70	50-60	40-50	25-35
	57	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Orovada	0-7	Fine sandy loam	SM	A-2, A-4	0	95-100	90-100	75-95	30-50	---	NP
	7-15	Fine sandy loam, loam.	SM, ML	A-4	0	75-100	75-95	60-80	40-60	20-30	NP-5
	15-60	Stratified fine sandy loam to silt loam.	SM, ML	A-4	0	75-100	75-95	60-85	35-55	20-30	NP-5
591*:											
Bucan	0-11	Loam	CL	A-6	0	90-95	85-95	75-85	55-65	30-35	10-15
	11-30	Clay	CH	A-7	0-5	90-95	85-95	75-85	65-75	50-65	35-45
	30-57	Gravelly clay, gravelly clay loam, cobbly clay.	CL	A-7	0-15	70-95	60-90	55-70	50-60	40-50	25-35
	57	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vanwyper	0-10	Gravelly loam	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Akler	0-6	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	30-40	25-30	30-35	10-15
	6-17	Gravelly clay	GC, CH	A-7	0-10	55-80	50-75	40-70	40-70	55-70	30-45
	17-21	Weathered bedrock	---	---	---	---	---	---	---	---	---
600*:											
Hapgood	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
600*:											
Bullump---	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando---	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
620*:											
Soughe---	0-4	Very cobbly loam	GM-GC, GM	A-4	30-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Soughe---	0-4	Very cobbly loam	GM-GC, GM	A-4	30-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
630*:											
Cowgil Variant--	0-5	Very cobbly loam	GM, SM	A-4, A-2	30-40	45-75	40-65	35-60	25-45	20-25	NP-5
	5-12	Very cobbly loam, very cobbly sandy clay loam.	GC, SC	A-6, A-2	30-45	45-75	40-65	35-60	25-45	30-35	10-15
	12-42	Very cobbly loam, very gravelly fine sandy loam, very gravelly sandy loam.	GM, SM	A-1, A-2	15-35	40-70	35-60	25-60	15-35	15-25	NP-5
	42	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
630*:											
Soughe----------	0-4	Very cobbly loam	GM-GC, GM	A-4	30-40	55-70	50-60	45-55	35-45	20-30	NP-10
	4-14	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, SC	A-2	0-15	35-65	25-55	15-25	10-20	35-40	15-20
	14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
631*:											
Hunewill--------	0-7	Gravelly silt loam.	GM, GM-GC, SM, SM-SC	A-4	0	55-85	50-75	45-65	35-50	20-30	NP-10
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
Bilbo----------	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
Devilsgait------	0-8	Silt loam--------	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
632*:											
Hunewill--------	0-7	Gravelly sandy loam.	GM, SM	A-1	0-5	55-80	50-75	30-45	15-25	---	NP
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
632*:											
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Devilsgait	0-8	Silt loam	CL-ML, ML	A-4	0	100	100	90-100	75-95	25-35	5-10
	8-43	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	43-68	Stratified loamy fine sand to silt loam.	CL-ML, CL, SC, SM-SC	A-4, A-6	0	100	90-100	60-85	45-65	25-35	5-15
633*:											
Hunewill	0-7	Sandy loam	SM	A-2	0-10	80-100	75-95	50-60	25-35	15-25	NP-5
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
Kelk	0-14	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Hunewill	0-7	Gravelly coarse sandy loam.	GM, SM	A-1	0-5	55-80	50-75	30-45	15-25	---	NP
	7-19	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam.	GC, GM	A-2, A-6	0-15	45-55	40-50	30-45	20-40	35-40	10-15
	19-62	Extremely cobbly sand, extremely gravelly sand, extremely cobbly loamy sand.	GP, GP-GM	A-1	15-50	35-45	30-40	10-25	0-10	---	NP
640*:											
Arcia	0-14	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
640*:											
Tusel	0-19	Gravelly loam	SM, GM	A-4	0-10	55-80	50-75	45-70	35-50	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hackwood	0-20	Silt loam	CL-ML, CL	A-4, A-6	0	80-100	75-100	70-90	60-80	20-35	5-15
	20-30	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20
650*:											
Karpp	0-7	Silt loam	CL	A-6	0-5	80-100	75-90	70-90	55-75	25-35	10-15
	7-15	Very gravelly silt loam.	GC	A-6, A-2	0-15	30-60	25-50	25-50	20-45	25-35	10-15
	15-41	Indurated material.	---	---	---	---	---	---	---	---	---
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Rad	0-7	Silt loam	ML	A-4	0	100	100	90-100	80-90	30-35	5-10
	7-26	Stratified fine sandy loam to silt loam.	ML	A-4	0	100	95-100	80-95	65-85	30-35	NP-5
	26-56	Very fine sandy loam, silt loam.	ML	A-4	0	100	100	95-100	75-85	25-30	NP-5
	56-62	Stratified sandy loam to silt loam.	ML	A-4	0	95-100	95-100	80-90	65-75	25-30	NP-5
651*:											
Karpp	0-7	Gravelly silt loam.	GC, CL	A-6	0-10	60-80	55-75	55-70	40-65	25-35	10-15
	7-15	Very gravelly silt loam.	GC	A-6, A-2	0-15	30-60	25-50	25-50	20-45	25-35	10-15
	15-41	Indurated material.	---	---	---	---	---	---	---	---	---
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
651*:											
Wieland	0-5	Silt loam	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
660*:											
Ichbod	0-3	Gravelly sandy loam.	SM-SC	A-4	0-5	70-80	60-75	45-60	35-45	20-25	5-10
	3-7	Sandy clay loam	ML, CL	A-6, A-7	0	90-100	85-95	70-85	50-70	35-45	10-20
	7-19	Gravelly sandy clay, gravelly clay.	SC, CH, CL	A-7	0	85-100	50-75	40-75	35-65	40-55	20-30
	19-35	Weathered bedrock	---	---	---	---	---	---	---	---	---
	35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Akler	0-6	Cobbly loam	CL	A-6	15-40	85-95	80-90	70-80	50-65	30-35	10-15
	6-17	Clay	CH	A-7	0	80-100	75-100	65-90	50-70	55-70	30-45
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
690*:											
Welch	0-9	Loam	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
Welch	0-9	Silty clay loam	CL	A-6	0	95-100	95-100	90-100	70-90	35-40	15-20
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6	0	80-100	75-100	65-90	50-70	30-40	10-20
693*:											
Welch	0-9	Loam	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
Woofus	0-8	Loam	CL	A-6	0	100	100	85-100	70-90	25-35	10-15
	8-30	Stratified loam to silty clay loam.	CL	A-6	0	100	85-100	70-90	55-85	30-40	10-20
	30-60	Stratified loamy fine sand to gravelly coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	60-100	55-100	30-70	5-25	---	NP
695*:											
Welch	0-9	Silt loam	CL-ML, CL	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6	0	80-100	75-100	65-90	50-70	30-40	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
695*:											
Crooked Creek---	0-5	Silty clay loam	CL	A-6	0	95-100	95-100	95-100	80-90	30-35	10-15
	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
Welch-----------	0-9	Silt loam--------	CL-ML, CL	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6	0	80-100	75-100	65-90	50-70	30-40	10-20
698*:											
Halleck---------	0-9	Silt loam--------	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
Halleck---------	0-9	Silt loam--------	ML	A-4	0	100	100	90-100	75-90	30-35	5-10
	9-36	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	85-95	30-50	10-20
	36-61	Stratified loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	75-95	30-50	10-20
Crooked Creek---	0-5	Silt loam--------	CL	A-6	0	95-100	95-100	90-100	80-90	30-35	10-15
	5-38	Clay, silty clay	CH	A-7	0	95-100	95-100	90-100	75-95	50-65	25-35
	38-60	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	85-100	80-100	75-95	60-85	35-50	15-25
700*:											
Leevan----------	0-5	Cobbly loam------	CL-ML, CL	A-4, A-6	15-45	80-95	75-90	60-80	50-70	25-35	5-15
	5-9	Gravelly clay loam.	GC, SC	A-6	0-5	60-80	50-75	40-55	35-50	35-40	15-20
	9-14	Gravelly clay----	GC, SC, CH, CL	A-7	0-10	60-80	50-75	45-65	40-60	45-55	20-30
	14-24	Very gravelly clay.	GC	A-2, A-7	10-15	35-60	30-50	25-45	25-40	45-55	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Cobbly loam------	CL-ML, CL, SM-SC, SC	A-4, A-6	15-30	80-95	70-90	60-80	40-70	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
700*:											
Arcia	0-14	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
701*:											
Leevan	0-5	Cobbly loam	CL-ML, CL	A-4, A-6	15-45	80-95	75-90	60-80	50-70	25-35	5-15
	5-9	Gravelly clay loam.	GC, SC	A-6	0-5	60-80	50-75	40-55	35-50	35-40	15-20
	9-14	Gravelly clay	GC, SC, CH, CL	A-7	0-10	60-80	50-75	45-65	40-60	45-55	20-30
	14-24	Very gravelly clay.	GC	A-2, A-7	10-15	35-60	30-50	25-45	25-40	45-55	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernog	0-10	Gravelly loam	SM-SC, SC	A-4, A-6	0-5	70-95	55-75	35-65	35-50	25-35	5-15
	10-17	Very stony clay loam, very stony loam.	GC	A-6, A-7	25-30	55-70	50-65	40-55	35-50	30-45	10-20
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
702*:											
Leevan	0-9	Very gravelly loam.	GC	A-2, A-6	0-15	40-55	35-50	30-45	25-40	25-35	10-15
	9-26	Very gravelly clay.	GC	A-2, A-7	0-25	35-55	35-50	35-45	30-45	45-55	30-35
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz	0-4	Very stony loam	GC, CL, SC	A-6	25-50	60-85	55-80	50-70	35-60	25-35	10-20
	4-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7, A-2	10-40	35-60	30-55	25-50	20-40	35-45	15-25
	12-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-25	30-55	25-50	20-45	15-40	45-55	20-30
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
702*:											
McIvey----------	0-12	Gravelly silt loam.	GC, SC, CL	A-6	0-10	60-85	50-75	50-70	40-60	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
710*:											
Samor----------	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Porrone---------	0-18	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-10	45-55	40-50	25-45	15-35	20-30	NP-10
	18-65	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-15	40-55	35-50	20-45	10-35	20-25	NP-5
Rock outcrop.											
711*:											
Samor----------	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Siri----------	0-6	Very gravelly loam.	GC, GM-GC	A-2	0-10	35-55	25-45	20-40	15-30	25-35	5-15
	6-57	Extremely gravelly loam, very gravelly loam.	GC, GP-GC	A-2	0-15	20-50	10-40	10-40	5-30	25-35	10-15
	57	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nirac----------	0-14	Very gravelly loam.	GM	A-1, A-2	0-5	40-60	30-50	25-45	20-35	15-25	NP-5
	14-25	Very gravelly loam, very gravelly silt loam.	GM-GC	A-2	0-15	30-60	25-50	20-45	15-35	25-30	5-10
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
712*:											
Samor	0-6	Gravelly loam	CL, SC, GC	A-6	0-10	60-80	55-75	50-70	40-60	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nirac	0-14	Very gravelly loam.	GM	A-1, A-2	0-5	40-60	30-50	25-45	20-35	15-25	NP-5
	14-25	Very gravelly loam, very gravelly silt loam.	GM-GC	A-2	0-15	30-60	25-50	20-45	15-35	25-30	5-10
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Samor	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
716*:											
Samor	0-6	Very gravelly silt loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
Nirac	0-14	Gravelly silt loam.	ML	A-4	0-5	70-85	60-75	55-70	50-65	20-25	NP-5
	14-25	Very gravelly loam, very gravelly silt loam.	GM-GC	A-2	0-15	30-60	25-50	20-45	15-35	25-30	5-10
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
719*:											
Samor	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
719*:											
Sumine----------	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Eboda----------	0-9	Gravelly loam----	CL-ML, ML, SM-SC, SM	A-4	0-5	70-85	55-75	50-70	35-60	25-35	5-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
722*:											
Lerrow----------	0-5	Cobbly loam------	SC, CL	A-6	30-40	80-95	75-90	65-75	45-55	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
723*:											
Lerrow----------	0-5	Cobbly loam------	SC, CL	A-6	30-40	80-95	75-90	65-75	45-55	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant----------	0-3	Cobbly loam------	CL	A-6	15-30	80-90	70-80	60-70	50-60	25-35	10-15
	3-19	Clay-------------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
Bregar----------	0-2	Very gravelly coarse sandy loam.	GM	A-1	0-5	45-60	35-50	20-40	10-20	20-25	NP-5
	2-8	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
740---------- Connel	0-7	Extremely gravelly coarse sandy loam.	GP, GP-GM	A-1	0	15-30	10-25	5-15	0-10	20-25	NP-5
	7-20	Loam-------------	ML	A-4	0	85-100	75-100	60-75	55-70	20-25	NP-5
	20-60	Stratified very gravelly loamy sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	0-10	15-55	10-45	5-35	0-10	---	NP
760*:											
Yuko----------	0-2	Gravelly sandy loam.	SM	A-2, A-1	0-10	60-80	50-75	30-55	15-30	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Tuffo----------	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Quarz----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
761*:											
Yuko	0-2	Gravelly sandy loam.	SM	A-2, A-1	0-10	60-80	50-75	30-55	15-30	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Tuffo	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Bregar	0-2	Extremely cobbly loam.	GC, GM-GC	A-2	50-60	50-65	35-45	30-40	25-35	25-35	5-15
	2-8	Very gravelly clay loam, extremely gravelly loam, extremely cobbly sandy clay loam.	GC	A-2	0-40	25-60	20-50	15-45	15-35	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
762*:											
Yuko	0-2	Very gravelly loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Bilbo	0-4	Cobbly loam------	GC, CL, GM-GC, CL-ML	A-6, A-4	15-25	70-95	70-90	60-75	45-65	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
763*:											
Yuko	0-2	Gravelly sandy loam.	SM	A-2, A-1	0-10	60-80	50-75	30-55	15-30	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
763*:											
Tuffo	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Yuko	0-2	Very gravelly sandy loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
764*:											
Yuko	0-2	Very gravelly coarse sandy loam.	GM	A-1	0-10	40-55	35-50	20-35	10-20	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Tuffo	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Upsteer	0-11	Silt loam	ML	A-4	0	95-100	90-100	80-100	80-100	30-35	5-10
	11-35	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	95-100	95-100	95-100	80-100	30-45	5-20
	35-61	Loam, silt loam	ML	A-4	0	100	90-100	90-95	75-90	30-35	5-10
770*:											
Gochea	0-7	Loam	CL-ML	A-4	0	80-100	75-95	60-75	50-65	20-30	5-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, GM, SM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Donna	0-10	Gravelly loam	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
771*:											
Gochea	0-7	Gravelly loam	GM-GC, SM-SC, GM, SM	A-2, A-4	0	55-80	50-75	30-55	25-50	20-30	NP-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, SM, GM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Welch	0-9	Silt loam	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
Welch	0-9	Silt loam	CL-ML, CL	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6	0	80-100	75-100	65-90	50-70	30-40	10-20
772*:											
Gochea	0-7	Loam	CL-ML	A-4	0	80-100	75-95	60-75	50-65	20-30	5-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, GM, SM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Gochea	0-7	Gravelly loam	GM-GC, SM-SC, GM, SM	A-2, A-4	0	55-80	50-75	30-55	25-50	20-30	NP-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, SM, GM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Tuffo	0-3	Gravelly sandy loam.	SM	A-1, A-2	0	65-80	60-75	35-50	20-30	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
773*:											
Gochea	0-8	Silt loam	CL	A-6	0	90-100	75-100	70-95	65-90	30-35	10-15
	8-20	Clay loam	CL	A-6, A-7	0	80-100	75-100	70-90	60-80	35-45	15-20
	20-47	Cobbly loam, cobbly sandy loam.	CL-ML, SM-SC, ML, SM	A-4	15-25	85-95	80-90	65-80	35-60	20-30	NP-10
	47	Weathered bedrock	---	---	---	---	---	---	---	---	---
Samor	0-6	Very gravelly loam.	GC	A-2	5-25	45-65	35-50	30-45	25-35	25-35	10-15
	6-19	Very cobbly loam, very gravelly loam.	SC, GC	A-2, A-6	0-40	40-70	35-65	30-60	25-50	25-35	10-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Nirac	0-14	Gravelly silt loam.	ML	A-4	0-5	70-85	60-75	55-70	50-65	20-25	NP-5
	14-25	Very gravelly loam, very gravelly silt loam.	GM-GC	A-2	0-15	30-60	25-50	20-45	15-35	25-30	5-10
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
775*:											
Gochea	0-7	Loam	CL-ML	A-4	0	80-100	75-95	60-75	50-65	20-30	5-10
	7-21	Gravelly clay loam, gravelly sandy clay loam, clay loam.	GC, SC, CL	A-6, A-7	0	60-95	50-90	45-85	35-65	30-45	10-20
	21-41	Sandy loam, gravelly loam.	ML, GM, SM	A-4, A-2	0	60-95	55-90	35-75	25-55	20-25	NP-5
	41-60	Very gravelly sand, extremely gravelly sand.	GP	A-1	0	25-50	15-35	10-20	0-5	---	NP
Donna	0-10	Silt loam	CL-ML, CL	A-4, A-6	0	95-100	90-100	75-95	50-75	25-35	5-15
	10-23	Clay	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
Stampede	0-11	Gravelly loam	CL	A-6	0	70-80	65-75	60-70	50-65	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
780*:											
Cowgil----------	0-3	Very cobbly sandy loam.	SM	A-1	25-40	60-75	50-65	35-45	15-25	20-25	NP-5
	3-30	Very gravelly sandy clay loam.	GC	A-2	10-25	50-65	40-55	35-50	20-30	30-40	10-20
	30-61	Very cobbly loamy sand, very gravelly loamy sand, extremely gravelly sand.	GM, GP-GM, GP	A-1	10-35	35-55	25-50	15-30	0-15	---	NP
Linkup----------	0-3	Gravelly clay loam.	CL	A-6, A-7	0-10	65-90	60-85	55-80	50-70	35-45	15-20
	3-8	Clay loam, gravelly clay loam, gravelly clay.	CL, GC	A-6, A-7	0-10	55-100	50-90	45-80	40-75	35-50	15-25
	8-16	Clay, gravelly clay.	CH, GC	A-7	0-10	55-100	50-90	45-85	40-80	50-60	25-35
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
810*:											
Nirac----------	0-14	Gravelly silt loam.	ML	A-4	0-5	70-85	60-75	55-70	50-65	20-25	NP-5
	14-25	Very gravelly loam, very gravelly silt loam.	GM-GC	A-2	0-15	30-60	25-50	20-45	15-35	25-30	5-10
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod----------	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod----------	0-3	Extremely gravelly loam.	GC	A-2	5-30	20-40	15-25	10-25	10-20	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
813*:											
Spilock----------	0-4	Very gravelly loam.	GM-GC	A-2	0	30-55	25-50	20-40	20-30	25-30	5-10
	4-10	Very gravelly loam, extremely gravelly loam.	GM-GC	A-2	0	25-40	20-35	15-30	15-25	25-30	5-10
	10-30	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
813*:											
Gochea----------	0-8	Silt loam--------	CL	A-6	0	90-100	75-100	70-95	65-90	30-35	10-15
	8-20	Clay loam--------	CL	A-6, A-7	0	80-100	75-100	70-90	60-80	35-45	15-20
	20-47	Cobbly loam, cobbly sandy loam.	CL-ML, SM-SC, ML, SM	A-4	15-25	85-95	80-90	65-80	35-60	20-30	NP-10
	47	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chiara----------	0-4	Silt loam--------	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
814*:											
Denay----------	0-15	Very gravelly loam.	GM	A-2	0-5	50-60	35-50	25-40	25-35	20-25	NP-5
	15-60	Extremely gravelly loam, extremely gravelly silt loam.	GM	A-1	0-5	25-35	15-25	15-25	10-20	20-25	NP-5
Siri----------	0-6	Very gravelly loam.	GC, GM-GC	A-2	0-10	35-55	25-45	20-40	15-30	25-35	5-15
	6-57	Extremely gravelly loam, very gravelly loam.	GC, GP-GC	A-2	0-15	20-50	10-40	10-40	5-30	25-35	10-15
	57	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bobs----------	0-13	Gravelly loam----	SM, ML, GM	A-4	0-15	70-80	65-75	55-70	40-55	20-25	NP-5
	13-19	Gravelly loam, gravelly very fine sandy loam, gravelly silt loam.	GM, SM	A-4	0-15	60-80	50-75	45-70	35-50	20-25	NP-5
	19-29	Indurated material.	---	---	---	---	---	---	---	---	---
832*:											
Alburz----------	0-7	Loam----------	CL-ML, ML	A-4	0	80-100	75-95	70-90	50-65	20-30	NP-10
	7-20	Stratified gravelly coarse sandy loam to gravelly loam.	SM	A-2, A-1	0-5	65-85	50-75	30-50	20-35	15-25	NP-5
	20-60	Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	10-45	20-35	10-30	0-15	0-10	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
832*:											
Alburz Variant--	0-12	Loam----------	ML	A-4	0	95-100	85-100	65-85	55-75	20-25	NP-5
	12-20	Gravelly sandy loam, gravelly coarse sandy loam.	SM	A-1, A-2	0-10	75-90	55-75	20-45	15-30	20-25	NP-5
	20-60	Very cobbly sand, extremely cobbly sand.	GP, GP-GM	A-1	40-60	10-55	10-50	0-25	0-10	---	NP
834*:											
Alburz----------	0-7	Loam----------	CL-ML, ML	A-4	0	80-100	75-95	70-90	50-65	20-30	NP-10
	7-20	Stratified gravelly coarse sandy loam to gravelly loam.	SM	A-2, A-1	0-5	65-85	50-75	30-50	20-35	15-25	NP-5
	20-60	Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	10-45	20-35	10-30	0-15	0-10	---	NP
Welch----------	0-9	Silt loam--------	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
835*:											
Alburz----------	0-7	Loam----------	CL-ML, ML	A-4	0	80-100	75-95	70-90	50-65	20-30	NP-10
	7-20	Stratified gravelly coarse sandy loam to gravelly loam.	SM	A-2, A-1	0-5	65-85	50-75	30-50	20-35	15-25	NP-5
	20-60	Stratified extremely gravelly loamy coarse sand to extremely gravelly coarse sand.	GP, GP-GM	A-1	10-45	20-35	10-30	0-15	0-10	---	NP
Ocala----------	0-20	Silt loam--------	CL, CL-ML	A-4, A-6	0	95-100	95-100	80-90	80-90	25-35	5-15
	20-50	Silt loam, silty clay loam.	ML	A-6, A-7, A-4	0	100	100	95-100	85-95	30-50	5-20
	50-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	90-100	80-90	25-35	5-15
839*:											
Woofus----------	0-8	Loam----------	CL	A-6	0	100	100	85-100	70-90	25-35	10-15
	8-30	Stratified loam to silty clay loam.	CL	A-6	0	100	85-100	70-90	55-85	30-40	10-20
	30-60	Stratified loamy fine sand to gravelly coarse sand.	SM, SP-SM	A-1, A-2, A-3	0	60-100	55-100	30-70	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
839*:											
Tweba----------	0-19	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	90-100	65-80	20-30	NP-10
	19-34	Fine sandy loam, very fine sandy loam, loam.	ML	A-4	0	100	100	80-95	50-65	20-25	NP-5
	34-60	Stratified very fine sandy loam to loamy sand.	SM	A-2, A-4	0	90-100	90-100	55-75	25-45	---	NP
Devilsgait------	0-13	Silt loam--------	CL	A-6	0	100	100	90-100	75-95	25-35	10-15
	13-42	Stratified silt loam to silty clay loam.	CL, ML	A-6, A-7	0	100	100	95-100	80-95	30-50	10-20
	42-54	Stratified gravelly silt loam to silty clay loam.	CL, ML	A-6, A-7	0	85-95	80-90	75-90	65-85	30-50	10-20
	54-63	Extremely gravelly coarse sand.	GP	A-1	0-10	25-40	15-30	10-15	0-5	---	NP
840*:											
Ninemile--------	0-5	Gravelly loam----	GC, CL	A-6	0-5	60-85	55-75	50-70	35-60	30-35	10-15
	5-12	Clay, gravelly clay.	CH	A-7	0-15	70-100	65-100	60-90	50-80	50-65	25-35
	12-16	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
851*:											
Loomis----------	0-2	Very cobbly loam	GC, SC	A-6, A-2	30-55	60-80	50-65	40-60	25-50	30-35	10-15
	2-7	Very cobbly clay loam.	GC	A-7	30-40	55-70	50-65	35-50	35-45	40-50	20-25
	7-11	Very cobbly clay, very gravelly clay.	GC	A-7, A-2	0-55	35-70	30-50	25-50	25-50	50-60	25-35
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod----------	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
852*:											
Loomis----------	0-2	Very cobbly loam	GC, SC	A-6, A-2	30-55	60-80	50-65	40-60	25-50	30-35	10-15
	2-7	Very cobbly clay loam.	GC	A-7	30-40	55-70	50-65	35-50	35-45	40-50	20-25
	7-11	Very cobbly clay, very gravelly clay.	GC	A-7, A-2	0-55	35-70	30-50	25-50	25-50	50-60	25-35
	11	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vanwyper--------	0-10	Gravelly loam----	GC, SC	A-6	0-5	55-75	50-70	45-65	35-50	25-35	10-15
	10-25	Very cobbly clay, very cobbly clay loam.	GC, CL, CH	A-7	25-55	55-75	50-65	45-60	40-55	40-60	20-40
	25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Norfork---------	0-2	Very cobbly silt loam.	GM-GC, GC	A-6, A-4	30-45	50-65	45-60	45-55	40-50	25-35	5-15
	2-12	Gravelly silty clay, cobbly silty clay loam, gravelly silty clay loam.	CL, CH	A-7	10-25	60-80	55-75	50-75	50-70	40-60	20-35
	12-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
862*:											
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
881*:											
Kleckner--------	0-9	Cobbly loam------	SC, CL, SM-SC, CL-ML	A-6, A-4	15-30	75-100	70-90	65-80	45-65	25-35	5-15
	9-25	Very cobbly clay, very cobbly clay loam, very gravelly clay.	GC	A-2, A-7	10-45	45-70	40-55	35-50	30-45	40-55	25-35
	25-41	Gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GC, GM-GC, CL-ML, CL	A-6, A-4	0-5	65-90	60-85	50-75	40-60	25-35	5-15
Fulstone--------	0-3	Gravelly loam----	SM-SC, SC, CL-ML, CL	A-4, A-6	0-5	75-90	55-75	45-65	40-55	25-35	5-15
	3-19	Clay, gravelly clay.	MH	A-7	0-5	85-100	70-90	55-80	50-75	50-65	20-30
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-57	Extremely gravelly sandy clay.	GC, GP-GC, GM, GP-GM	A-2	25-40	25-40	10-25	10-20	5-15	45-55	20-25
Stampede--------	0-11	Loam-------------	CL	A-6	0	80-100	75-95	60-80	50-70	25-35	10-15
	11-35	Clay, silty clay	CH	A-7	0-10	90-100	85-95	80-90	70-85	50-60	30-40
	35-45	Indurated material.	---	---	---	---	---	---	---	---	---
912*:											
Tuffo-----------	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Yuko------------	0-2	Very gravelly loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Tuffo-----------	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
913*:											
Tuffo-----------	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
913*:											
Yuko	0-2	Gravelly sandy loam.	SM	A-2, A-1	0-10	60-80	50-75	30-55	15-30	15-25	NP-5
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
Vanwyper	0-8	Very cobbly loam	SC	A-2, A-6	30-45	70-80	55-65	40-55	30-40	25-35	10-15
	8-39	Very cobbly clay loam, very cobbly clay.	GC, CL, CH	A-7	35-55	55-75	50-65	45-60	40-55	40-60	20-40
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
920*:											
Bullump	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel	0-19	Gravelly loam----	SM, GM	A-4	0-10	55-80	50-75	45-70	35-50	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
923*:											
Bullump	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
923*:											
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel	0-19	Very gravelly loam.	GM	A-2	0-15	50-60	40-50	35-45	25-35	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
925*:											
Bullump	0-23	Gravelly loam	SC, GC	A-6	0-10	60-85	50-75	45-65	35-50	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Gando	0-9	Very gravelly loam.	GM-GC, GM	A-2, A-1	0-5	40-60	25-50	20-35	15-30	20-30	NP-10
	9-17	Extremely gravelly loam, very gravelly loam, extremely gravelly sandy loam.	GM	A-2, A-1	0-30	30-40	20-35	15-30	10-25	20-35	NP-10
	17-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
926*:											
Bullump	0-23	Very gravelly loam.	GC, SC	A-2	0-10	45-70	35-50	30-45	25-35	25-35	10-15
	23-54	Very gravelly clay loam, very gravelly loam, very gravelly sandy clay loam.	GC	A-2, A-6, A-7	0-15	40-65	30-50	25-45	15-40	35-45	15-20
	54	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
970*:											
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Wedekind	0-2	Coarse sandy loam	SM	A-1, A-2	0	85-100	75-100	45-60	20-35	20-25	NP-5
	2-12	Sandy clay loam	SC	A-6	0	100	85-100	70-90	35-50	30-40	10-15
	12-42	Weathered bedrock	---	---	---	---	---	---	---	---	---
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
971*:											
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
971*:											
Porrone	0-18	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-10	45-55	40-50	25-45	15-35	20-30	NP-10
	18-65	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-15	40-55	35-50	20-45	10-35	20-25	NP-5
972*:											
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Porrone	0-18	Very gravelly loam.	GM, GM-GC	A-1, A-2	0-10	45-55	40-50	25-45	15-35	20-30	NP-10
	18-65	Very gravelly sandy loam, very gravelly loam.	GM	A-1, A-2	0-15	40-55	35-50	20-45	10-35	20-25	NP-5
Chiara	0-4	Very fine sandy loam.	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
973*:											
Izod	0-3	Extremely gravelly loam.	GC	A-2	5-30	20-40	15-25	10-25	10-20	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Izod	0-3	Very gravelly loam.	GC	A-2	0-25	30-55	25-50	20-45	15-35	25-35	10-15
	3-13	Very gravelly loam, extremely gravelly loam.	GC	A-2	0-25	20-55	15-50	15-45	10-35	25-35	10-15
	13	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop.											
990*:											
Eboda	0-9	Loam	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
990*:											
Hart Camp	0-7	Gravelly loam	SM, GM	A-2, A-4	0-5	60-85	60-75	40-65	30-50	20-25	NP-5
	7-11	Gravelly loam, gravelly sandy clay loam, gravelly clay loam.	SC	A-2, A-6	0-5	70-80	55-75	45-65	30-50	30-40	10-20
	11-24	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant	0-3	Cobbly loam	CL	A-6	15-30	80-90	70-80	60-70	50-60	25-35	10-15
	3-19	Clay	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
992*:											
Eboda	0-9	Gravelly loam	CL-ML, ML, SM-SC, SM	A-4	0-5	70-85	55-75	50-70	35-60	25-35	5-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
Loncan	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Leevan	0-5	Cobbly loam	CL-ML, CL	A-4, A-6	15-45	80-95	75-90	60-80	50-70	25-35	5-15
	5-9	Gravelly clay loam.	GC, SC	A-6	0-5	60-80	50-75	40-55	35-50	35-40	15-20
	9-14	Gravelly clay	GC, SC, CH, CL	A-7	0-10	60-80	50-75	45-65	40-60	45-55	20-30
	14-24	Very gravelly clay.	GC	A-2, A-7	10-15	35-60	30-50	25-45	25-40	45-55	20-30
	24	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
993*:											
Eboda	0-9	Gravelly loam	CL-ML, ML, SM-SC, SM	A-4	0-5	70-85	55-75	50-70	35-60	25-35	5-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
993*:											
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loncan	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1230*:											
Fulstone	0-3	Gravelly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0-5	75-90	55-75	45-65	40-55	25-35	5-15
	3-19	Clay, gravelly clay.	MH	A-7	0-5	85-100	70-90	55-80	50-75	50-65	20-30
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-57	Extremely gravelly sandy clay.	GC, GP-GC, GM, GP-GM	A-2	25-40	25-40	10-25	10-20	5-15	45-55	20-25
Hunnton	0-6	Loam	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
1231*:											
Fulstone	0-3	Gravelly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0-5	75-90	55-75	45-65	40-55	25-35	5-15
	3-19	Clay, gravelly clay.	MH	A-7	0-5	85-100	70-90	55-80	50-75	50-65	20-30
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-57	Extremely gravelly sandy clay.	GC, GP-GC, GM, GP-GM	A-2	25-40	25-40	10-25	10-20	5-15	45-55	20-25

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1231*:											
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Wieland---------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
1232*:											
Fulstone--------	0-3	Gravelly loam----	SM-SC, SC, CL-ML, CL	A-4, A-6	0-5	75-90	55-75	45-65	40-55	25-35	5-15
	3-19	Clay, gravelly clay.	MH	A-7	0-5	85-100	70-90	55-80	50-75	50-65	20-30
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-57	Extremely gravelly sandy clay.	GC, GP-GC, GM, GP-GM	A-2	25-40	25-40	10-25	10-20	5-15	45-55	20-25
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
Yuko----------	0-2	Very gravelly sandy loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1234*:											
Fulstone--------	0-3	Very cobbly silt loam.	GM-GC, GC	A-4, A-6	30-45	55-75	45-60	40-55	35-50	25-35	5-15
	3-19	Clay, gravelly clay.	MH	A-7	0-5	85-100	70-90	55-80	50-75	50-65	20-30
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-57	Extremely gravelly sandy clay.	GC, GP-GC, GM, GP-GM	A-2	25-40	25-40	10-25	10-20	5-15	45-55	20-25
Igdell----------	0-17	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	17-38	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	38-39	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	39-40	Indurated material.	---	---	---	---	---	---	---	---	---
McIvey----------	0-18	Very cobbly loam	GC	A-6	25-50	50-70	45-65	40-60	35-50	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-60	40-45	20-25
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-7, A-2	10-55	45-60	35-50	35-45	30-45	45-55	30-35
1270*:											
Wieland----------	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1270*:											
Puett	0-2	Sandy loam	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
1271*:											
Wieland	0-5	Silt loam	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Enko	0-4	Silt loam	CL-ML	A-4	0	95-100	85-100	75-100	50-70	20-30	5-10
	4-18	Loam, sandy loam, fine sandy loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	60-90	35-70	20-30	5-10
	18-25	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-4	0	95-100	85-100	75-90	40-65	20-25	5-10
	25-60	Sandy loam, fine sandy loam, loam.	SM-SC, CL-ML	A-2, A-4	0	85-100	75-100	60-90	30-65	20-25	5-10
1272*:											
Wieland	0-5	Gravelly loam	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Gance	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1272*:											
Dacker----------	0-7	Silt loam--------	CL-ML, ML	A-4	0-5	90-100	85-100	75-100	60-90	25-35	5-10
	7-16	Silty clay loam, gravelly silty clay loam.	CL	A-6	0-5	75-100	70-90	65-90	60-85	35-40	15-20
	16-25	Silt loam, silty clay loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	35-40	15-20
	25-31	Silt loam, gravelly silt loam.	CL, GC	A-6	0-5	55-100	50-90	45-90	40-85	30-35	10-15
	31-52	Indurated material.	---	---	---	---	---	---	---	---	---
1273*:											
Wieland----------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Bilbo----------	0-4	Gravelly loam----	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	55-75	50-70	40-55	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5
Tustell----------	0-5	Very gravelly loam.	GC	A-2	0	40-60	30-50	25-45	20-35	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1274*:											
Wieland	0-5	Loam	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Tuffo	0-3	Fine sandy loam	SM	A-2, A-4	0	80-95	75-90	60-80	30-45	15-20	NP-5
	3-11	Very fine sandy loam, gravelly sandy loam, fine sandy loam.	SM	A-2, A-4	0	65-95	60-90	55-80	30-50	15-20	NP-5
	11	Weathered bedrock	---	---	---	---	---	---	---	---	---
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
1276*:											
Wieland	0-5	Loam	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Chiara	0-4	Silt loam	ML	A-4	0	95-100	90-100	85-95	70-80	25-35	NP-5
	4-10	Very fine sandy loam, loam, silt loam.	ML	A-4	0	95-100	90-100	80-95	70-80	25-35	NP-5
	10-14	Indurated material.	---	---	---	---	---	---	---	---	---
Puett	0-2	Gravelly sandy loam.	SM-SC	A-2	0-5	70-80	60-70	45-55	20-35	20-30	5-10
	2-11	Coarse sandy loam, gravelly loam, sandy loam.	SM, ML, GM	A-1, A-2, A-4	0	55-95	50-90	30-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
1277*:											
Wieland	0-5	Loam	CL-ML, ML	A-4	0	90-100	75-100	70-90	50-75	20-30	NP-10
	5-26	Gravelly clay	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1277*:											
Hunnton---------	0-6	Loam----------	ML	A-4	0	95-100	85-100	75-100	60-75	20-35	NP-10
	6-14	Loam, clay loam, silty clay loam.	CL	A-6	0	95-100	90-100	75-95	60-90	30-35	10-15
	14-28	Clay, gravelly clay.	CH	A-7	0-5	75-100	60-95	60-95	55-85	50-60	25-35
	28-42	Indurated material.	---	---	---	---	---	---	---	---	---
	42-60	Very gravelly loamy sand, very gravelly sandy loam, extremely gravelly loamy sand.	GP-GM, GM	A-1	0	25-50	20-45	15-35	5-20	---	NP
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
1278*:											
Wieland---------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-85	50-75	45-70	35-60	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Kelk----------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Wieland---------	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1279*:											
Wieland---------	0-5	Very gravelly loam.	GC, SC	A-2, A-6	0-5	40-80	25-50	20-45	15-40	25-35	10-15
	5-26	Gravelly clay, clay.	CH, SC	A-7	0-5	75-95	55-90	50-80	45-75	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Kelk----------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	95-100	85-95	25-35	5-15
	14-51	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	95-100	95-100	85-95	25-35	5-15
	51-60	Silt loam--------	CL-ML, CL	A-4, A-6	0	95-100	90-100	85-100	75-95	25-35	5-15
Puett----------	0-2	Sandy loam-------	SM	A-4	0	90-100	85-95	60-80	35-50	---	NP
	2-11	Coarse sandy loam, fine sandy loam, sandy loam.	SM, ML	A-1, A-2, A-4	0	80-100	75-95	40-80	15-55	---	NP
	11-15	Weathered bedrock	---	---	---	---	---	---	---	---	---
1280*:											
Wieland---------	0-5	Silt loam--------	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Zevadez---------	0-5	Gravelly loam----	SM-SC, SC	A-2, A-4, A-6	0	70-85	60-75	45-65	30-50	20-35	5-15
	5-16	Sandy clay loam, clay loam, loam.	SC, CL	A-6	0	85-100	75-100	60-90	35-65	30-40	10-20
	16-33	Fine sandy loam, very fine sandy loam.	SM, SM-SC	A-4	0	85-100	75-100	65-90	40-50	15-25	NP-10
	33-62	Loamy sand, loamy fine sand, fine sandy loam.	SM	A-4	0	85-100	75-100	60-80	35-45	---	NP
Gance----------	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1281*:											
Wieland---------	0-5	Silt loam--------	CL-ML	A-4	0	95-100	90-100	85-95	75-85	20-30	5-10
	5-26	Gravelly clay----	CH, SC	A-7	0-5	75-95	55-75	50-70	45-65	50-60	25-35
	26-52	Gravelly sandy clay loam, gravelly clay loam.	GC, SC	A-6, A-2	0-5	60-85	50-70	40-70	25-50	35-40	15-20
	52-60	Loam, gravelly loam, gravelly sandy loam.	CL-ML, SM-SC	A-4, A-2	0-5	65-95	55-90	40-85	25-70	20-30	5-10
Tustell---------	0-5	Gravelly loam----	GC, SC	A-6	0	55-80	50-75	45-70	35-50	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
Tustell---------	0-5	Very gravelly loam.	GC	A-2	0	40-60	30-50	25-45	20-35	25-35	10-15
	5-19	Gravelly clay, gravelly clay loam, clay.	CL, GC	A-7	0	60-90	55-85	55-80	45-70	40-50	25-35
	19-30	Gravelly sandy loam, gravelly loam, sandy loam.	GM-GC, SM-SC, CL-ML	A-4	0	60-90	55-85	50-70	35-60	15-25	5-10
	30-60	Stratified very gravelly loamy sand to gravelly loamy fine sand.	GP-GM, GM	A-1	0-10	30-55	25-50	15-45	5-25	---	NP
1631*:											
Hackwood--------	0-20	Silt loam--------	CL-ML, CL	A-4, A-6	0	80-100	75-100	70-90	60-80	20-35	5-15
	20-30	Gravelly loam, gravelly silt loam.	GM-GC, SM-SC, CL-ML, CL	A-4, A-6	0	60-80	50-75	40-70	35-65	25-35	5-15
	30-60	Very gravelly clay loam, very gravelly silty clay loam, very gravelly loam.	GC	A-2, A-6	0	40-60	35-50	30-45	25-40	35-40	15-20
Hapgood---------	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1631*:											
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1662*:											
Susie Creek-----	0-7	Gravelly loam----	CL-ML, ML, GM-GC, GM	A-4	0	60-80	50-75	45-70	35-55	25-35	5-10
	7-30	Clay loam, sandy clay, clay.	CH, CL	A-7	0	90-100	75-95	70-90	50-75	45-55	25-35
	30-43	Sandy loam, loam	SM, ML	A-4	0	85-100	75-95	60-80	45-65	20-25	NP-5
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---
Kleckner--------	0-9	Gravelly loam----	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
Quarz-----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1663*:											
Susie Creek-----	0-7	Gravelly loam----	CL-ML, ML, GM-GC, GM	A-4	0	60-80	50-75	45-70	35-55	25-35	5-10
	7-30	Clay loam, sandy clay, clay.	CH, CL	A-7	0	90-100	75-95	70-90	50-75	45-55	25-35
	30-43	Sandy loam, loam	SM, ML	A-4	0	85-100	75-95	60-80	45-65	20-25	NP-5
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---
Akler-----------	0-6	Loam----------	CL, SC	A-6	0-10	80-90	75-85	65-80	45-65	30-35	10-15
	6-17	Clay----------	CH	A-7	0	80-100	75-100	65-90	50-70	55-70	30-45
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1663*:											
Eboda	0-9	Loam	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
1664*:											
Susie Creek	0-7	Gravelly loam	CL-ML, ML, GM-GC, GM	A-4	0	60-80	50-75	45-70	35-55	25-35	5-10
	7-30	Clay loam, sandy clay, clay.	CH, CL	A-7	0	90-100	75-95	70-90	50-75	45-55	25-35
	30-43	Sandy loam, loam	SM, ML	A-4	0	85-100	75-95	60-80	45-65	20-25	NP-5
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---
Akler	0-6	Loam	CL, SC	A-6	0-10	80-90	75-85	65-80	45-65	30-35	10-15
	6-17	Clay	CH	A-7	0	80-100	75-100	65-90	50-70	55-70	30-45
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
Yuko	0-2	Very gravelly loam.	GM, GM-GC	A-2, A-1	0-10	40-55	35-50	25-45	15-35	20-30	NP-10
	2-6	Clay loam, silty clay loam.	CL	A-7	0	90-100	80-100	75-95	70-85	40-45	15-20
	6-8	Clay, clay loam	CL	A-7	0	90-100	85-100	75-100	65-85	40-50	15-25
	8	Weathered bedrock	---	---	---	---	---	---	---	---	---
1721*:											
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Arcia	0-14	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1722*:											
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernty	0-2	Gravelly loam----	SC, SM-SC	A-4, A-6	0-5	70-85	55-75	40-60	40-50	25-35	5-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1724*:											
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1724*:											
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1725*:											
Quarz-----------	0-4	Cobbly loam------	CL	A-6	25-30	85-95	80-90	60-70	50-60	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1727*:											
Quarz-----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Susie Creek-----	0-7	Gravelly loam----	CL-ML, ML, GM-GC, GM	A-4	0	60-80	50-75	45-70	35-55	25-35	5-10
	7-30	Clay loam, sandy clay, clay.	CH, CL	A-7	0	90-100	75-95	70-90	50-75	45-55	25-35
	30-43	Sandy loam, loam	SM, ML	A-4	0	85-100	75-95	60-80	45-65	20-25	NP-5
	43-47	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1727*:											
Loncan----------	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1728*:											
Quarz----------	0-4	Very stony loam	GC, CL, SC	A-6	25-50	60-85	55-80	50-70	35-60	25-35	10-20
	4-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7, A-2	10-40	35-60	30-55	25-50	20-40	35-45	15-25
	12-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-25	30-55	25-50	20-45	15-40	45-55	20-30
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tusel----------	0-19	Gravelly loam----	SM, GM	A-4	0-10	55-80	50-75	45-70	35-50	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45-49	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1729*:											
Quarz----------	0-4	Very stony loam	GC, CL, SC	A-6	25-50	60-85	55-80	50-70	35-60	25-35	10-20
	4-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7, A-2	10-40	35-60	30-55	25-50	20-40	35-45	15-25
	12-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-25	30-55	25-50	20-45	15-40	45-55	20-30
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1729*:											
Tusel	0-19	Gravelly loam	SM, GM	A-4	0-10	55-80	50-75	45-70	35-50	25-35	NP-10
	19-45	Extremely gravelly sandy clay loam, extremely gravelly clay loam, very gravelly clay loam.	GC	A-2	15-45	30-50	25-40	20-35	15-30	30-40	10-20
	45	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Very cobbly loam	GM-GC, GC	A-2, A-4, A-6	30-45	55-75	45-65	40-60	25-50	25-35	5-15
	6-15	Very cobbly clay loam, extremely cobbly sandy clay loam, very gravelly clay loam.	GC	A-2	25-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1805*:											
Bregar	0-2	Extremely gravelly loam.	GM-GC, GC	A-2	10-20	35-50	20-30	15-25	10-20	25-35	5-15
	2-8	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine	0-6	Very gravelly loam.	GM-GC	A-2, A-4	10-15	50-65	45-60	40-50	30-40	20-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6, A-7	15-40	45-70	35-65	30-50	25-45	35-45	15-25
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Hapgood	0-8	Very gravelly loam.	GM-GC, GM	A-2	0	40-55	35-50	30-40	25-35	20-30	NP-10
	8-31	Very gravelly loam, very gravelly fine sandy loam.	GM-GC, GC	A-2	0-10	50-60	45-55	35-50	25-35	25-30	5-10
	31-42	Very cobbly loam, very gravelly sandy loam.	GM	A-1, A-2	15-40	55-65	50-60	35-45	20-35	20-30	NP-5
	42-46	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1806*:											
Bregar	0-1	Extremely gravelly loam.	GM-GC, GC	A-2	10-20	35-50	20-30	15-25	10-20	25-35	5-15
	1-6	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	6-10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Graley	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chen	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1807*:											
Bregar	0-2	Extremely gravelly loam.	GM-GC, GC	A-2	10-20	35-50	20-30	15-25	10-20	25-35	5-15
	2-8	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bregar	0-1	Very gravelly sandy loam.	GM	A-1	0-5	45-60	35-50	20-40	10-20	20-25	NP-5
	1-6	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	6-10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1807*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
1808*:											
Bregar----------	0-2	Extremely gravelly loam.	GM-GC, GC	A-2	10-20	35-50	20-30	15-25	10-20	25-35	5-15
	2-8	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey----------	0-18	Very cobbly loam	GC	A-6	25-50	50-70	45-65	40-60	35-50	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-60	40-45	20-25
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-7, A-2	10-55	45-60	35-50	35-45	30-45	45-55	30-35
Cotant----------	0-3	Very cobbly loam	GC, CL	A-6	50-65	60-80	55-75	45-60	40-55	25-35	10-15
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
1821*:											
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1821*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Quarz----------	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1822*:											
Cotant----------	0-3	Gravelly clay loam.	GC, CL	A-6, A-7	0	60-85	50-70	40-65	35-60	35-45	15-20
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Bregar----------	0-2	Extremely cobbly loam.	GC, GM-GC	A-2	50-60	50-65	35-45	30-40	25-35	25-35	5-15
	2-8	Very gravelly clay loam, extremely gravelly loam, extremely cobbly sandy clay loam.	GC	A-2	0-40	25-60	20-50	15-45	15-35	35-45	15-25
	8-12	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Donna----------	0-10	Gravelly loam----	CL	A-6	0	65-75	60-75	55-70	50-60	30-40	10-20
	10-23	Clay----------	CH	A-7	0	80-90	75-85	75-80	70-80	60-70	30-40
	23-33	Indurated material.	---	---	---	---	---	---	---	---	---
	33-60	Stratified extremely gravelly sandy loam to gravelly sandy clay loam.	GC	A-2	10-35	40-55	30-40	20-30	10-20	30-40	10-20
1823*:											
Cotant----------	0-3	Very cobbly loam	GC, CL	A-6	50-65	60-80	55-75	45-60	40-55	25-35	10-15
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1823*:											
Kleckner--------	0-9	Gravelly loam----	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
McIvey----------	0-18	Cobbly loam------	CL	A-6	15-25	75-95	65-90	60-80	50-70	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-60	40-45	20-25
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-7, A-2	10-55	45-60	35-50	35-45	30-45	45-55	30-35
1824*:											
Cotant----------	0-3	Very cobbly loam	GC, CL	A-6	50-65	60-80	55-75	45-60	40-55	25-35	10-15
	3-19	Clay-------------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant----------	0-3	Very cobbly loam	GC, CL	A-6	50-65	60-80	55-75	45-60	40-55	25-35	10-15
	3-19	Clay-------------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
McIvey----------	0-18	Cobbly loam------	CL	A-6	15-25	75-95	65-90	60-80	50-70	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-60	40-45	20-25
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-7, A-2	10-55	45-60	35-50	35-45	30-45	45-55	30-35
1825*:											
Cotant----------	0-3	Very gravelly clay loam.	GC	A-2	0	35-55	30-50	25-45	25-35	35-45	15-20
	3-19	Clay-------------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay-------------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1825*:											
McIvey----------	0-18	Very gravelly loam.	GC	A-2	0-10	35-60	25-50	25-45	15-35	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	10-55	45-60	35-50	35-45	30-45	45-55	20-30
1826*:											
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Eboda----------	0-9	Loam----------	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
1828*:											
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
Lerrow----------	0-5	Cobbly loam------	SC, CL	A-6	30-40	80-95	75-90	65-75	45-55	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Akler----------	0-6	Loam----------	CL, SC	A-6	0-10	80-90	75-85	65-80	45-65	30-35	10-15
	6-17	Clay----------	CH	A-7	0	80-100	75-100	65-90	50-70	55-70	30-45
	17	Weathered bedrock	---	---	---	---	---	---	---	---	---
1829*:											
Cotant----------	0-3	Very cobbly clay loam.	GC, SC	A-6	50-65	60-80	55-75	45-60	40-50	35-40	15-20
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1829*:											
McIvey----------	0-12	Gravelly silt loam.	GC, SC, CL	A-6	0-10	60-85	50-75	50-70	40-60	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Rock outcrop.											
1830*:											
Cotant----------	0-3	Very cobbly clay loam.	GC, SC	A-6	50-65	60-80	55-75	45-60	40-50	35-40	15-20
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Shively----------	0-16	Loam----------	ML	A-4	0-2	90-100	80-95	65-85	50-60	15-20	NP-5
	16-31	Fine sandy loam, loam.	ML	A-4	0-5	80-100	75-100	65-85	50-60	20-25	NP-5
	31-46	Fine sandy loam, sandy loam, sandy clay loam.	SM-SC, CL-ML	A-4	0-5	80-100	75-100	60-70	45-60	25-30	5-10
	46-56	Weathered bedrock	---	---	---	---	---	---	---	---	---
1831*:											
Cotant----------	0-3	Very cobbly clay loam.	GC, SC	A-6	50-65	60-80	55-75	45-60	40-50	35-40	15-20
	3-19	Clay----------	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1831*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Welch-----------	0-9	Silt loam--------	CL-ML	A-4	0	95-100	95-100	85-95	60-70	25-30	5-10
	9-61	Stratified sandy loam to silty clay loam.	CL	A-6, A-7	0	80-100	75-100	65-90	50-70	35-45	15-20
1875*:											
Chen------------	0-5	Gravelly silt loam.	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	75-85	60-70	55-65	45-55	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ebic------------	0-10	Gravelly loam----	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Blackleg--------	0-4	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	60-80	55-75	40-55	35-50	25-35	5-15
	4-27	Very gravelly clay loam.	GC	A-2	0-10	35-55	30-50	25-40	20-35	40-45	20-25
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
1876*:											
Chen------------	0-5	Gravelly silt loam.	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	75-85	60-70	55-65	45-55	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1876*:											
Ebic	0-10	Gravelly loam	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1877*:											
Chen	0-5	Very cobbly loam	GC, GM-GC	A-2, A-4, A-6	45-55	55-65	50-60	45-55	30-40	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2	5-50	45-55	30-50	25-40	25-35	55-65	35-40
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Bregar	0-1	Very gravelly coarse sandy loam.	GM	A-1	0-5	45-60	35-50	20-40	10-20	20-25	NP-5
	1-6	Very gravelly sandy clay loam, extremely cobbly clay loam, very gravelly clay loam.	GC	A-2	5-45	40-50	25-35	20-30	10-25	35-45	15-25
	6-10	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Loncan	0-14	Very gravelly loam.	GC	A-2	10-15	40-60	30-45	25-40	20-35	30-35	10-15
	14-31	Very gravelly loam, extremely cobbly loam, very gravelly sandy clay loam.	GC	A-2	10-55	35-60	30-50	25-40	20-35	30-35	10-15
	31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1879*:											
Chen	0-5	Cobbly loam	SM-SC, SM	A-4	20-25	80-90	60-80	55-70	40-50	25-35	5-10
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cotant	0-3	Very cobbly loam	GC, CL	A-6	50-65	60-80	55-75	45-60	40-55	25-35	10-15
	3-19	Clay	CL, CH	A-7	0-5	90-100	75-100	60-95	50-85	45-65	25-40
	19-31	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1879*:											
Arcia	0-14	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1880*:											
Chen	0-5	Very cobbly loam	GC, GM-GC	A-2, A-4, A-6	45-55	55-65	50-60	45-55	30-40	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2	5-50	45-55	30-50	25-40	25-35	55-65	35-40
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Arcia	0-14	Gravelly loam	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1881*:											
Chen	0-5	Cobbly loam	SM-SC, SM	A-4	20-25	80-90	60-80	55-70	40-50	25-35	5-10
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1881*:											
Chen	0-5	Cobbly loam	SM-SC, SM	A-4	20-25	80-90	60-80	55-70	40-50	25-35	5-10
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lerrow	0-5	Cobbly loam	SC, CL	A-6	30-40	80-95	75-90	65-75	45-55	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
1882*:											
Chen	0-5	Very cobbly loam	GC, GM-GC	A-2, A-4, A-6	45-55	55-65	50-60	45-55	30-40	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2	5-50	45-55	30-50	25-40	25-35	55-65	35-40
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Lerrow	0-5	Cobbly loam	SC, CL	A-6	30-40	80-95	75-90	65-75	45-55	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1883*:											
Chen	0-5	Gravelly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	75-85	60-70	55-65	45-55	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1883*:											
Lerrow----------	0-5	Gravelly loam----	SC	A-6	0-10	70-80	60-75	55-65	40-50	30-35	10-15
	5-15	Clay loam, gravelly clay loam.	CL, GC	A-7	0	55-90	50-85	45-80	35-65	40-50	20-25
	15-32	Cobbly clay, gravelly clay, clay.	CH	A-7	10-25	75-95	65-85	60-75	55-70	50-60	25-35
	32	Weathered bedrock	---	---	---	---	---	---	---	---	---
Cotant----------	0-3	Very gravelly loam.	GC	A-2	0-5	50-60	35-50	30-45	25-35	30-35	10-15
	3-19	Clay----------	CH, CL	A-7	0	90-100	75-100	60-100	50-95	45-65	25-40
	19-23	Weathered bedrock	---	---	---	---	---	---	---	---	---
1884*:											
Chen----------	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Graley----------	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage--------	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1885*:											
Chen----------	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1885*:											
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Linkup	0-3	Gravelly clay loam.	CL	A-6, A-7	0-10	65-90	60-85	55-80	50-70	35-45	15-20
	3-8	Clay loam, gravelly clay loam, gravelly clay.	CL, GC	A-6, A-7	0-10	55-100	50-90	45-80	40-75	35-50	15-25
	8-16	Clay, gravelly clay.	CH, GC	A-7	0-10	55-100	50-90	45-85	40-80	50-60	25-35
	16-20	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1886*:											
Chen	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Cleavage	0-6	Extremely gravelly loam.	GM-GC	A-2	0-10	35-45	15-25	10-25	10-20	25-30	5-10
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz	0-4	Very gravelly loam.	GC	A-2	0-15	40-55	35-50	30-45	20-35	25-35	10-15
	4-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	30-55	25-50	20-45	15-40	45-60	20-30
	26-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1887*:											
Chen	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1887*:											
Graley----------	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1888*:											
Chen----------	0-5	Very gravelly loam.	GC	A-2	0-15	50-65	35-50	30-45	25-35	30-35	10-15
	5-15	Very gravelly clay, extremely gravelly clay, very cobbly clay.	GC	A-2, A-7	0-45	35-50	25-45	25-45	20-40	50-60	25-35
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Graley----------	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Quarz----------	0-4	Very cobbly loam	GC, CL, SC	A-6	25-50	60-85	55-80	50-70	35-60	25-35	10-20
	4-12	Very cobbly clay loam, very gravelly clay loam.	GC	A-6, A-7, A-2	10-40	35-60	30-55	25-50	20-40	35-45	15-25
	12-26	Very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	5-25	30-55	25-50	20-45	15-40	45-55	20-30
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1889*:											
Chen----------	0-5	Cobbly loam------	SM-SC, SM	A-4	20-25	80-90	60-80	55-70	40-50	25-35	5-10
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
1889*:											
McIvey----------	0-12	Gravelly loam----	GC, SC	A-6	0-10	60-85	50-75	45-70	35-50	30-40	10-15
	12-24	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	24-42	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	0-55	45-60	35-50	35-45	30-45	45-55	20-30
	42-60	Extremely cobbly clay loam, very cobbly clay loam.	GC	A-2, A-7	30-55	40-65	30-60	30-50	25-40	40-45	15-20
Arcia----------	0-14	Gravelly loam----	GM-GC, SM-SC	A-2, A-4	0-5	55-80	50-75	35-60	30-50	20-25	5-10
	14-21	Gravelly clay loam, clay loam.	CL	A-6, A-7	0-10	65-100	60-100	55-90	50-80	35-45	15-20
	21-34	Clay, gravelly clay, cobbly clay.	CL, CH, GC, SC	A-7	0-25	60-95	55-90	45-85	40-75	45-65	20-35
	34-39	Very cobbly clay	CL, CH	A-7	30-60	80-90	70-85	55-65	50-60	45-65	20-35
	39	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1935*:											
Tweener----------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tweener----------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Graley----------	0-7	Very gravelly loam.	GM	A-1, A-2	0-5	30-50	25-45	20-40	15-30	20-25	NP-5
	7-17	Very gravelly clay loam, very gravelly clay.	GC	A-2, A-7	0-25	40-55	35-50	30-50	25-40	45-55	20-30
	17-21	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
1936*:											
Tweener----------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments >3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
1936*:											
Tweener----------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
McIvey----------	0-18	Very gravelly loam.	GC	A-2	0-10	35-60	25-50	25-45	15-35	30-40	10-15
	18-23	Very gravelly clay loam, gravelly clay loam.	GC, SC, CL	A-7	0-10	55-85	45-75	40-70	35-55	40-45	15-20
	23-62	Very gravelly clay, very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	10-55	45-60	35-50	35-45	30-45	45-55	20-30
2010*:											
Rock outcrop.											
Pernty----------	0-2	Very gravelly loam.	GC	A-2	0-10	40-55	35-50	25-35	20-30	30-35	10-15
	2-18	Very cobbly clay loam, very gravelly clay loam, very gravelly loam.	GC	A-6, A-7	10-30	50-60	45-55	40-50	35-45	35-45	15-20
	18-22	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Pernog----------	0-10	Very stony loam	GM-GC, GC	A-4, A-6	30-45	60-75	45-70	40-65	35-50	25-35	5-15
	10-17	Very stony clay loam, very stony loam.	GC	A-6, A-7	25-30	55-70	50-65	40-55	35-50	30-45	10-20
	17	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2020*:											
Bobs Variant----	0-9	Loam----------	CL	A-6	0	80-100	75-100	60-100	55-90	25-35	10-15
	9-19	Very gravelly loam, very gravelly silt loam.	GC	A-2, A-6	0	40-55	35-50	30-50	25-45	25-35	10-15
	19-34	Indurated material.	---	---	---	---	---	---	---	---	---
	34-40	Gravelly loam, loam.	GM-GC, SM-SC	A-2, A-4	0	60-95	55-90	30-60	30-50	20-25	5-10
	40-54	Extremely gravelly loam, very gravelly loam.	GM-GC	A-2	0	20-40	15-35	10-30	10-25	20-25	5-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
2020*:											
Dewar----------	0-5	Gravelly loam----	GC, CL, SC	A-6	0-5	60-90	55-80	45-80	35-70	25-35	10-15
	5-11	Gravelly silty clay loam, gravelly clay loam.	GC, CL	A-6, A-7	0-10	65-90	60-80	55-80	45-75	35-45	15-20
	11-17	Gravelly silt loam.	GM-GC, GC, CL-ML, CL	A-4, A-6	0-10	65-90	60-80	55-80	40-70	25-35	5-15
	17-44	Indurated material.	---	---	---	---	---	---	---	---	---
2031*:											
Shalcleav-------	0-3	Extremely channery silt loam.	GM-GC	A-2	25-30	30-45	20-35	15-30	15-25	20-30	5-10
	3-5	Very channery clay loam, very channery silt loam.	GC	A-2, A-6	15-30	50-60	45-50	30-45	25-40	30-40	10-15
	5-10	Extremely flaggy clay, extremely channery clay, extremely channery clay loam.	GC	A-2	55-80	45-50	40-45	35-40	30-35	40-50	20-30
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Tweener---------	0-4	Very gravelly loam.	GM-GC	A-2	5-15	35-55	30-50	25-40	20-30	25-30	5-10
	4-10	Very cobbly clay loam, very cobbly loam.	GC, SC	A-2, A-6, A-7	45-60	60-80	55-75	40-70	30-50	30-45	10-20
	10-14	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2040*:											
Cameek----------	0-7	Silt loam--------	CL	A-6	0	80-95	75-90	65-90	50-80	30-35	10-15
	7-18	Clay, gravelly clay, gravelly sandy clay.	GC, SC, CH	A-2, A-7	0	55-90	50-85	40-75	30-60	50-65	25-40
	18-40	Indurated material.	---	---	---	---	---	---	---	---	---
Bilbo----------	0-4	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	40-65	30-50	25-45	20-40	25-35	5-15
	4-22	Very gravelly sandy clay, very gravelly clay, very gravelly clay loam.	GC	A-2, A-7	0-25	45-65	35-50	30-45	20-40	40-55	20-35
	22-60	Extremely gravelly loamy sand, very gravelly sandy loam.	GP-GM, GM	A-1	0-10	30-60	15-50	10-40	5-20	15-25	NP-5

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
2040*:											
Cameek	0-7	Silt loam	CL	A-6	0	80-95	75-90	65-90	50-80	30-35	10-15
	7-18	Clay, gravelly clay, gravelly sandy clay.	GC, SC, CH	A-2, A-7	0	55-90	50-85	40-75	30-60	50-65	25-40
	18-40	Indurated material.	---	---	---	---	---	---	---	---	---
2070*:											
Heechee	0-11	Silt loam	CL, CL-ML	A-4, A-6	0-5	85-100	75-100	55-75	50-70	25-35	5-15
	11-33	Very cobbly clay loam, very gravelly sandy clay loam, very cobbly loam.	GC	A-2, A-6	15-50	45-75	35-65	30-60	25-50	30-40	10-20
	33-50	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam, extremely cobbly loam.	GP-GM, GM, GP-GC, GM-GC	A-1, A-2	45-55	30-60	20-45	10-35	5-20	20-30	NP-10
	50	Weathered bedrock	---	---	---	---	---	---	---	---	---
Manard	0-5	Silt loam	CL	A-6	0-5	90-100	85-100	75-100	60-95	30-40	10-20
	5-22	Silty clay, clay	CH, CL	A-7	0-5	90-100	85-100	75-100	65-95	45-60	25-40
	22-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vitale	0-6	Gravelly loam	GM-GC, GC	A-4, A-6	0-10	55-75	50-75	40-60	35-50	25-35	5-15
	6-23	Very gravelly clay loam, very cobbly clay loam.	GC	A-6, A-2, A-7	10-45	35-65	30-60	30-55	25-45	35-45	15-25
	23-27	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2071*:											
Heechee	0-11	Gravelly loam	SM-SC, SC, CL-ML, CL	A-4, A-6	0-5	75-85	55-75	40-60	40-55	25-35	5-15
	11-33	Very cobbly clay loam, very gravelly sandy clay loam, very cobbly loam.	GC	A-2, A-6	15-50	45-75	35-65	30-60	25-50	30-40	10-20
	33-63	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam.	GP-GM, GM, GP-GC, GM-GC	A-1, A-2	45-55	30-60	20-50	10-35	5-20	20-30	NP-10

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
2071*:											
Heechee----------	0-11	Very cobbly loam	GM-GC, SM-SC, GC, SC	A-4, A-6	30-45	65-85	55-70	40-65	40-50	25-35	5-15
	11-33	Very cobbly clay loam, very gravelly sandy clay loam, very cobbly loam.	GC	A-2, A-6	25-50	45-75	35-65	30-60	25-50	30-40	10-20
	33-63	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam, extremely cobbly loam.	GP-GM, GM, GP-GC, GM-GC	A-1, A-2	45-55	30-60	20-50	10-35	5-20	20-30	NP-10
2080*:											
Igdell----------	0-8	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	8-23	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	23-27	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
Manard----------	0-5	Silt loam--------	CL	A-6	0-5	90-100	85-100	75-100	60-95	30-40	10-20
	5-22	Silty clay, clay	CH, CL	A-7	0-5	90-100	85-100	75-100	65-95	45-60	25-40
	22-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ebic----------	0-10	Gravelly loam----	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
2081*:											
Igdell----------	0-8	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	8-23	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	23-27	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
2081*:											
Gance	0-4	Very gravelly loam.	GC	A-2, A-6	0-25	45-70	30-50	25-45	20-40	30-35	10-15
	4-29	Very gravelly clay, very gravelly sandy clay, extremely gravelly clay.	GC	A-2, A-7	0-30	40-70	20-55	15-55	10-40	40-60	20-35
	29-68	Extremely gravelly sandy loam, very cobbly sandy loam, extremely gravelly loam.	GM, GM-GC, GP-GM	A-2, A-4, A-1	15-55	25-60	20-55	10-50	5-40	20-30	NP-10
Eboda	0-9	Loam	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
2082*:											
Igdell	0-8	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	8-23	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	23-27	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
Shivlum	0-9	Loam	CL-ML	A-4	0	100	100	70-80	60-80	25-30	5-10
	9-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	100	100	95-100	85-95	30-45	10-20
	34-60	Clay loam	CL	A-7	0	100	100	85-95	65-75	40-45	15-20
2083*:											
Igdell	0-8	Very gravelly clay loam.	GC	A-7, A-6, A-2	0-10	45-60	35-50	30-50	25-40	35-45	15-20
	8-23	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	23-27	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
2083*:											
Kleckner--------	0-9	Gravelly loam----	CL-ML, ML	A-4	10-25	65-90	60-85	55-80	50-75	25-35	5-10
	9-25	Very gravelly clay, very cobbly clay loam, very cobbly clay.	GC	A-2, A-7	10-45	45-70	30-60	30-55	25-45	40-55	25-35
	25-41	Very gravelly clay loam, very gravelly clay, very cobbly clay.	GC, SC	A-2, A-7	0-45	45-90	25-60	25-55	20-50	40-55	25-35
	41-63	Loam, gravelly loam.	GM-GC, GM, CL-ML, ML	A-4	0-5	65-90	60-85	50-75	40-60	20-30	NP-10
2090*:											
Manard----------	0-7	Silt loam--------	CL	A-6	0-5	90-100	85-100	75-100	60-95	30-40	10-20
	7-22	Silty clay, clay	CH, CL	A-7	0-5	90-100	85-100	75-100	65-95	45-60	25-40
	22-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Igdell----------	0-8	Gravelly silt loam.	CL-ML, GC, GM-GC, CL	A-6, A-4	0-10	60-80	55-75	45-75	40-65	25-35	5-15
	8-23	Clay, gravelly clay, silty clay.	GC, CH	A-7	0-10	60-100	55-90	50-85	45-80	50-70	25-40
	23-27	Gravelly clay loam, very gravelly sandy clay loam, gravelly loam.	GC, CL, GM, ML	A-6, A-7, A-2	0-10	50-90	45-85	35-85	25-70	35-45	10-20
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
Eboda-----------	0-9	Loam-------------	SM, ML	A-4	0-5	80-95	75-90	65-80	45-65	25-35	NP-10
	9-33	Loam, clay loam	CL	A-6, A-7	0-5	80-95	75-90	70-90	50-70	35-45	15-20
	33-39	Gravelly sandy clay loam, gravelly clay loam, gravelly loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0-5	70-85	55-75	45-70	30-60	25-35	5-15
	39	Weathered bedrock	---	---	---	---	---	---	---	---	---
3000*:											
Vitale----------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-1	10-15	35-60	30-55	25-45	20-35	25-35	5-15
	6-23	Very gravelly clay loam, very cobbly clay loam.	GC	A-6, A-2, A-7	10-45	35-65	30-60	30-55	25-45	35-45	15-25
	23	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
3000*:											
Ebic	0-10	Gravelly loam	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chen	0-5	Gravelly silt loam.	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	75-85	60-70	55-65	45-55	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3010*:											
Ebic	0-10	Gravelly loam	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Manard	0-7	Silt loam	CL	A-6	0-5	90-100	85-100	75-100	60-95	30-40	10-20
	7-22	Silty clay, clay	CH, CL	A-7	0-5	90-100	85-100	75-100	65-95	45-60	25-40
	22-24	Indurated material.	---	---	---	---	---	---	---	---	---
	24-28	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Chen	0-5	Gravelly silt loam.	SM-SC, SC, CL-ML, CL	A-4, A-6	0-10	75-85	60-70	55-65	45-55	25-35	5-15
	5-15	Very gravelly clay, very cobbly clay, extremely gravelly clay.	GC	A-2	5-45	45-55	30-50	25-40	25-35	45-60	20-30
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3020*:											
Cleavmor	0-9	Very gravelly loam.	GM	A-2	0-5	50-65	35-50	25-40	25-35	20-25	NP-5
	9-15	Very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	0	25-50	20-35	20-30	15-30	35-45	15-20
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
3020*:											
Blackleg--------	0-4	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	60-80	55-75	40-55	35-50	25-35	5-15
	4-27	Very gravelly clay loam.	GC	A-2	0-10	35-55	30-50	25-40	20-35	40-45	20-25
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
3030*:											
Cleavmor--------	0-9	Very gravelly loam.	GM	A-2	0-5	50-65	35-50	25-40	25-35	20-25	NP-5
	9-15	Very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	0	25-50	20-35	20-30	15-30	35-45	15-20
	15	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Ebic------------	0-10	Gravelly loam----	GM-GC, SM-SC, GC, SC	A-4, A-6	10-15	65-90	55-85	45-60	35-50	25-35	5-15
	10-27	Very cobbly clay, extremely cobbly clay.	GC	A-2, A-7	30-45	40-55	25-55	20-45	15-40	50-65	25-35
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Blackleg--------	0-4	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	60-80	55-75	40-55	35-50	25-35	5-15
	4-27	Very gravelly clay loam.	GC	A-2	0-10	35-55	30-50	25-40	20-35	40-45	20-25
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
3040*:											
Peevywell-------	0-9	Gravelly silt loam.	CL	A-6	15-25	75-85	70-80	60-70	50-60	30-35	10-15
	9-16	Clay loam--------	CL	A-7	0-10	90-95	85-95	75-90	60-75	40-50	20-30
	16-28	Clay-------------	CH	A-7	0-10	90-95	85-95	70-90	70-90	50-60	25-35
	28-46	Indurated material.	---	---	---	---	---	---	---	---	---
	46-60	Very gravelly sandy loam.	GM, SM	A-1	15-25	40-70	35-60	25-50	10-20	20-25	NP-5
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Leevan----------	0-9	Gravelly loam----	GC, SC, CL	A-6	0-10	55-80	50-75	45-65	35-55	25-35	10-15
	9-26	Very gravelly clay.	GC	A-2, A-7	0-25	35-55	35-50	35-45	30-45	45-55	30-35
	26	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 5.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>3 inches	4	10	40	200		
	In				Pct					Pct	
3050*:											
Blackleg--------	0-4	Gravelly loam----	GM-GC, GC, SM-SC, SC	A-4, A-6	0-5	60-80	55-75	40-55	35-50	25-35	5-15
	4-27	Very gravelly clay loam.	GC	A-2	0-10	35-55	30-50	25-40	20-35	40-45	20-25
	27-40	Indurated material.	---	---	---	---	---	---	---	---	---
Peevywell-------	0-9	Gravelly silt loam.	CL	A-6	15-25	75-85	70-80	60-70	50-60	30-35	10-15
	9-16	Clay loam--------	CL	A-7	0-10	90-95	85-95	75-90	60-75	40-50	20-30
	16-28	Clay-------------	CH	A-7	0-10	90-95	85-95	70-90	70-90	50-60	25-35
	28-46	Indurated material.	---	---	---	---	---	---	---	---	---
	46-60	Very gravelly sandy loam.	GM, SM	A-1	15-25	40-70	35-60	25-50	10-20	20-25	NP-5
Cleavage--------	0-6	Very gravelly loam.	GM-GC, GC	A-2, A-4, A-6	0-10	50-70	30-50	25-45	20-40	25-35	5-15
	6-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam.	GC	A-2	0-45	40-55	30-45	25-45	20-35	30-45	10-20
	15-19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
3080*:											
Siri Variant----	0-9	Gravelly loam----	ML, CL-ML, GM, GM-GC	A-4	0-5	60-85	55-75	45-65	40-60	20-30	NP-10
	9-26	Very gravelly fine sandy loam.	GM, SM	A-1	0	55-75	35-50	30-50	15-25	15-25	NP-5
	26-30	Weathered bedrock	---	---	---	---	---	---	---	---	---
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sumine----------	0-6	Extremely stony loam.	SM-SC	A-4	25-35	75-85	65-75	45-60	35-50	25-30	5-10
	6-27	Very gravelly clay loam, very cobbly clay loam, very gravelly loam.	GC	A-2, A-6	15-40	45-70	35-65	30-50	30-45	30-40	10-20
	27-31	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Vitale Variant--	0-12	Very cobbly silt loam.	GM-GC, GC, SM-SC, SC	A-2, A-4, A-6	40-50	50-85	45-80	35-65	30-50	25-35	5-15
	12-43	Very gravelly clay loam, extremely gravelly clay loam.	GC	A-2	0-10	35-55	25-40	20-35	15-30	35-40	15-20
	43	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CLASSIFICATION OF THE SOILS

(An asterisk in the first column indicates that the soil is a taxadjunct to the series. See text for a description of those characteristics of the soil that are outside the range of the series)

Soil name	Family or higher taxonomic class
Akler	Clayey, montmorillonitic, frigid, shallow Xerollic Haplargids
Alburz	Sandy-skeletal, mixed, frigid Fluvaquentic Haplaquolls
Alburz Variant	Sandy-skeletal, mixed, frigid Typic Haplaquolls
Arcia	Fine, montmorillonitic, frigid Pachic Argixerolls
Betra	Clayey-skeletal, montmorillonitic, frigid Abruptic Aridic Durixerolls
Bilbo	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Bioya	Fine-loamy, mixed, mesic Xerollic Durorthids
Blackleg	Clayey-skeletal, montmorillonitic, frigid Typic Durixerolls
Bloor	Fine-silty, mixed, mesic Durixerollic Natrargids
Bobs	Loamy, carbonatic, frigid, shallow Aridic Petrocalcic Palexerolls
Bobs Variant	Loamy-skeletal, mixed, frigid, shallow Aridic Petrocalcic Palexerolls
Boulflat	Fine-loamy, mixed, mesic Haploxerollic Durargids
Bregar	Loamy-skeletal, mixed, frigid Lithic Xerollic Haplargids
Bucan	Fine, montmorillonitic, frigid Xerollic Haplargids
Bullump	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Bullvaro	Loamy-skeletal, mixed, frigid Pachic Argixerolls
Bunky	Fine-loamy, mixed, mesic Haploxerollic Durorthids
Cameek	Clayey, montmorillonitic, frigid, shallow Aridic Durixerolls
Cavehill	Loamy-skeletal, carbonatic, frigid Typic Calcixerolls
Chen	Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls
Cherry Spring	Fine-loamy, mixed, mesic Haploxerollic Durargids
Chiara	Loamy, mixed, mesic, shallow Xerollic Durorthids
Cleavage	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Cleavmor	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Connel	Coarse-loamy over sandy or sandy-skeletal, mixed, mesic Durixerollic Camborthids
Cotant	Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls
Cowgil	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Cowgil Variant	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Crooked Creek	Fine, montmorillonitic, frigid Cumulic Haplaquolls
Dacker	Fine-loamy, mixed, mesic Xerollic Durargids
Denay	Loamy-skeletal, mixed, frigid Aridic Calcixerolls
Devilsgait	Fine-silty, mixed (calcareous), mesic Cumulic Haplaquolls
Dewar	Loamy, mixed, mesic, shallow Xerollic Durargids
Donna	Very fine, montmorillonitic, frigid Abruptic Aridic Durixerolls
Ebic	Clayey-skeletal, montmorillonitic, frigid Typic Palexerolls
Eboda	Fine-loamy, mixed, frigid Aridic Argixerolls
Enko	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Fulstone	Clayey, montmorillonitic, mesic, shallow Abruptic Xerollic Durargids
Gance	Clayey-skeletal, montmorillonitic, mesic Durixerollic Haplargids
Gando	Loamy-skeletal, mixed, frigid Lithic Haploxerolls
Glean	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Gochea	Fine-loamy, mixed, frigid Durargidic Argixerolls
Gollaher	Loamy-skeletal, carbonatic, frigid Lithic Xerorthents
Graley	Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls
Grina	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Hackwood	Fine-loamy, mixed Pachic Cryoborolls
Halleck	Fine-silty, mixed (calcareous), frigid Cumulic Haplaquolls
Hapgood	Loamy-skeletal, mixed Pachic Cryoborolls
Hart Camp	Loamy, mixed, frigid, shallow Aridic Argixerolls
Haybourne	Coarse-loamy, mixed, mesic Xerollic Camborthids
Heechee	Loamy-skeletal, mixed, frigid Typic Argixerolls
Hopeka	Loamy-skeletal, carbonatic, frigid Lithic Xeric Torriorthents
Humdun	Coarse-loamy, mixed, frigid Durixerollic Camborthids
Hunewill	Loamy-skeletal, mixed, mesic Xerollic Haplargids
Hunnton	Fine, montmorillonitic, mesic Xerollic Durargids
Hussa	Fine-loamy, mixed (calcareous), frigid Fluvaquentic Haplaquolls
Ichbod	Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls
*Igdell	Fine, montmorillonitic, frigid Abruptic Aridic Durixerolls
Inpendence	Loamy-skeletal, mixed Entic Cryumbrepts
Izod	Loamy-skeletal, carbonatic, mesic Lithic Xeric Torriorthents

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Karpp	Loamy-skeletal, mixed, mesic, shallow Xerollic Durorthids
Kelk	Fine-silty, mixed, mesic Durixerollic Camborthids
Kleckner	Clayey-skeletal, montmorillonitic, frigid Aridic Argixerolls
Kodra	Coarse-loamy, mixed, mesic Haploxerollic Durorthids
Leevan	Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls
Lerrow	Fine, montmorillonitic, frigid Aridic Argixerolls
Linkup	Clayey, montmorillonitic, frigid Lithic Xerollic Haplargids
Loncan	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Loncan Variant	Fine-loamy, mixed, mesic Aridic Duric Haploxerolls
Loomis	Clayey-skeletal, montmorillonitic, mesic Lithic Xerollic Haplargids
Lyra	Loamy-skeletal, mixed, frigid, shallow Aridic Argixerolls
Mahala	Fine, montmorillonitic, mesic Xerollic Paleargids
Manard	Fine, montmorillonitic, frigid Typic Durixerolls
McIvey	Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls
Moranch	Coarse-silty, mixed (calcareous), mesic Durorthidic Torriorthents
Ninemile	Clayey, montmorillonitic, frigid Lithic Argixerolls
Nirac	Loamy-skeletal, mixed, frigid Aridic Calcixerolls
Norfork	Clayey, montmorillonitic, mesic, shallow Xerollic Durargids
Ocala	Fine-silty, mixed (calcareous), mesic Aeric Halaquepts
Orovada	Coarse-loamy, mixed, mesic Durixerollic Camborthids
Peeko	Loamy, mixed, mesic, shallow Xerollic Durorthids
Peevywell	Fine, montmorillonitic, frigid Typic Durixerolls
Pernog	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Pernty	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Perwick	Coarse-loamy, mixed (calcareous), mesic Xeric Torriorthents
Porrone	Loamy-skeletal, mixed, mesic Durixerollic Camborthids
Puett	Loamy, mixed (calcareous), mesic, shallow Xeric Torriorthents
Quarz	Clayey-skeletal, montmorillonitic, frigid Aridic Argixerolls
Rad	Coarse-silty, mixed, mesic Durixerollic Camborthids
Roca	Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids
Samor	Loamy-skeletal, mixed, mesic Lithic Xerollic Calciorthids
Shalcleav	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Shayla	Loamy-skeletal, mixed (calcareous), mesic, shallow Typic Torriorthents
Shively	Coarse-loamy, mixed, frigid Pachic Haploxerolls
Shivlum	Fine-silty, mixed, frigid Aridic Argixerolls
Short Creek	Clayey-skeletal, montmorillonitic, frigid Xerollic Haplargids
Siri	Loamy-skeletal, mixed, frigid Xerollic Calciorthids
Siri Variant	Loamy-skeletal, carbonatic, frigid Xerollic Calciorthids
Sonoma	Fine-silty, mixed (calcareous), mesic Aeric Fluvaquents
Sonoma Variant	Coarse-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Aeric Fluvaquents
Soughe	Loamy-skeletal, mixed, mesic Lithic Xerollic Haplargids
Spilock	Loamy-skeletal, mixed, mesic, shallow Xerollic Paleorthids
Stampede	Fine, montmorillonitic, frigid Aridic Durixerolls
Sumine	Loamy-skeletal, mixed, frigid Aridic Argixerolls
Susie Creek	Fine, montmorillonitic, frigid Durargidic Argixerolls
Tenvorrd	Loamy, mixed, mesic, shallow Xerollic Durorthids
Tuffo	Ashy, nonacid, mesic, shallow Xeric Torriorthents
Tusel	Loamy-skeletal, mixed Argic Pachic Cryoborolls
Tustell	Fine, montmorillonitic, mesic Durixerollic Haplargids
Tweba	Coarse-loamy, mixed (calcareous), mesic Aeric Fluvaquents
Tweener	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Upsteer	Fine-silty, mixed, frigid Aridic Duric Haploxerolls
Upville	Sandy-skeletal, mixed, frigid Aridic Haploxerolls
*Vanwyper	Clayey-skeletal, montmorillonitic, mesic Xerollic Haplargids
Vitale	Loamy-skeletal, mixed, frigid Typic Argixerolls
Vitale Variant	Loamy-skeletal, mixed, frigid Typic Argixerolls
Wedekind	Loamy, mixed, mesic, shallow Aridic Argixerolls
Welch	Fine-loamy, mixed, frigid Cumulic Haplaquolls
Welsum	Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), frigid Cumulic Haplaquolls
Wieland	Fine, montmorillonitic, mesic Durixerollic Haplargids

TABLE 6.--CLASSIFICATION OF THE SOILS--Continued

Soil name	Family or higher taxonomic class
Woofus	Fine-loamy over sandy or sandy-skeletal, mixed (calcareous), mesic Fluvaquentic Haplaquolls
Yuko	Loamy, mixed, mesic, shallow Xerollic Haplargids
Zevadez	Fine-loamy, mixed, mesic Durixerollic Haplargids

Rangeland Plants and Woodland Understory

010.--Boulflat, cobbly-Boulflat-Humdun association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Boulflat, cobbly	Boulflat	Humdun	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	---	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	---	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	---	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	---	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	---	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	None	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	---	800	800
Normal years		600	600	600	---	600	600
Unfavorable years		400	400	400	---	400	400

011.--Cherry Spring-Orovada-Yuko association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Cherry Spring	Orovada	Yuko	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	40-80	10-40	40-80
Thurber needlegrass	STTH2	10-40	10-40	5-15	10-40	5-15
Basin wildrye	ELCI2	5-15	5-15	2-5	5-15	2-5
Indian ricegrass	ORHY	2-10	2-10	2-5	2-10	2-5
Webber ricegrass	ORWE	2-10	2-10	---	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	---
Other perennial grasses	PPG	2-15	2-15	2-10	2-15	2-10
Globemallow	SPHAE	2-5	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	2-10	10-15	2-10
Antelope bitterbrush	PUTR2	---	---	1-10	---	1-10
Other shrubs	SSSS	5-15	5-15	2-8	5-15	2-8
Range site number		O25X019N	O25X019N	O25X015N	O25X019N	O25X015N
Potential production (lb/acre):						
Favorable years		800	800	1,000	800	1,000
Normal years		600	600	700	600	700
Unfavorable years		400	400	500	400	500

021.--Betra-McIvey-Heechee association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Betra	McIvey	Heechee	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	15-25	40-80	20-30	---	---
Idaho fescue	FEID	30-50	15-40	15-30	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	X	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	2-5	2-5	---	---	5-15
Nevada bluegrass	PONE3	---	2-5	2-5	---	2-10	---	40-60
Thurber needlegrass	STTH2	---	1-10	2-5	5-15	15-25	---	---
Indian ricegrass	ORHY	---	---	---	2-5	---	---	---
Sedge	CAREX	---	---	---	---	---	X	5-15
Rush	JUNCU	---	---	---	---	---	X	---
Streambank wheatgrass	AGRI	---	---	---	---	---	X	---
Western wheatgrass	AGSM	---	---	---	---	---	X	---
Alpine timothy	PHAL2	---	---	---	---	---	---	20-40
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-10	5-15	2-10	10-15	X	2-8
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	2-5	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	5-15	10-20	2-10	2-5	X	2-10
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	20-40	1-10	1-10	---	---
Mountain big sagebrush	ARTRV	---	10-15	2-10	---	---	---	---
Snowberry	SYMPH	---	---	2-5	---	---	---	---
Serviceberry	AMELA	---	---	2-5	---	---	---	---
Big sagebrush	ARTR2	---	---	---	2-10	10-15	---	---
Woods rose	ROWO	---	---	---	---	---	X	---
Currant	RIBES	---	---	---	---	---	X	---
Willow	SALIX	---	---	---	---	---	X	---
Other shrubs	SSSS	5-15	5-15	2-8	2-8	5-10	X	2-5
Cottonwood	POPUL	---	---	---	---	---	X	---

Range site number	O25X017N	O25X012N	O25X007N	O25X015N	O25X014N	O25X053N	O25X006N
Potential production (lb/acre):							
Favorable years	1,000	1,200	1,600	1,000	1,000	2,500	1,600
Normal years	700	900	1,300	700	800	2,000	1,300
Unfavorable years	400	600	800	500	600	1,500	800

030.--Gollaher-Cleavage-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Gollaher	Cleavage	Hapgood	1	2	3
Thurber needlegrass	STTH2	20-30	---	---	20-30	---	2-10
Bluebunch wheatgrass	AGSP	10-20	2-5	2-5	10-20	5-15	30-50
Indian ricegrass	ORHY	2-10	---	---	2-10	---	---
Bluegrass	POA++	2-5	5-15	---	2-5	---	---
Idaho fescue	FEID	---	10-30	2-10	---	5-15	2-5
Webber ricegrass	ORWE	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---
Mountain brome	BRMA4	---	---	5-15	---	10-20	---
Slender wheatgrass	AGTR	---	---	5-15	---	---	---
Spike-fescue	HEKI	---	---	2-10	---	2-5	---
Nevada bluegrass	PONE3	---	---	2-5	---	2-5	2-5
Letterman needlegrass	STLE4	---	---	2-5	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	10-20	5-10
Other perennial grasses	PPGG	5-20	2-8	5-15	5-20	5-15	5-10
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	2-5	2-5
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	2-5	2-5
Goldenweed	HAPLO2	---	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---
Geranium	GERAN	---	---	2-10	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---
Other perennial forbs	PPFF	5-15	5-10	5-15	5-15	2-5	2-5
Black sagebrush	ARARN	20-30	---	---	20-30	---	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---
Snowberry	SYMPH	---	---	2-10	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	2-5	---	5-15	2-15
Mountain big sagebrush	ARTRV	---	---	---	---	5-10	5-10
Range site number		O25X057N	O25X024N	O25X004N	O25X057N	O25X016N	O25X009N
Potential production (lb/acre):							
Favorable years		700	350	2,600	700	2,000	1,300
Normal years		500	250	1,800	500	1,400	900
Unfavorable years		300	150	1,400	300	1,000	700

060.--Kodra loam, 0 to 4 percent slopes

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name	Inclusion number--		
		Kodra	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

070.--Tenvorrd-Kodra association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Tenvorrd	Kodra	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

080.--Loncan Variant loam, 0 to 2 percent slopes

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Loncan Variant	1	2
Basin wildrye	ELCI2	50-60	5-15	5-15
Nevada bluegrass	PONE3	5-15	---	40-60
Mat muhly	MURI	2-10	---	5-15
Sedge	CAREX	1-5	---	5-15
Bluebunch wheatgrass	AGSP	---	10-40	---
Thurber needlegrass	STTH2	---	10-40	---
Indian ricegrass	ORHY	---	2-10	---
Webber ricegrass	ORWE	---	2-10	---
Bluegrass	POA++	---	2-10	---
Alpine timothy	PHAL2	---	---	20-40
Meadow barley	HOBR2	---	---	2-5
Other perennial grasses	PPGG	15-20	2-15	2-8
Globemallow	SPHAE	---	2-5	---
Cinquefoil	POTEN	---	---	2-5
Other perennial forbs	PPFF	5-10	2-10	2-10
Basin big sagebrush	ARTRT*	10-15	---	---
Big sagebrush	ARTR2	---	10-15	---
Other shrubs	SSSS	2-5	5-15	2-5

Range site number	O25X003N	O25X019N	O25X006N
Potential production (lb/acre):			
Favorable years	2,500	800	1,600
Normal years	1,900	600	1,300
Unfavorable years	1,200	400	800

110.--Moranch-Ocala-Orovada association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Moranch	Ocala	Orovada	1	2	3	4
Basin wildrye	ELCI2	15-20	40-60	5-15	40-60	50-60	5-15	---
Bottlebrush squirreltail	SIHY	2-10	---	---	---	---	---	---
Inland saltgrass	DIST	2-10	5-10	---	---	5-10	---	---
Alkali sacaton	SPAI	---	15-30	---	---	15-30	---	---
Bluebunch wheatgrass	AGSP	---	---	10-40	10-40	---	---	---
Thurber needlegrass	STTH2	---	---	10-40	10-40	---	---	---
Indian ricegrass	ORHY	---	---	2-10	2-10	---	---	---
Webber ricegrass	ORWE	---	---	2-10	2-10	---	---	---
Bluegrass	POA++	---	---	2-10	2-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-15	40-60
Mat muhly	MURI	---	---	---	---	---	2-10	5-15
Sedge	CAREX	---	---	---	---	---	1-5	5-15
Alpine timothy	PHAL2	---	---	---	---	---	---	20-40
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-4	2-8	2-15	2-15	2-8	15-20	2-8
Globemallow	SPHAE	---	---	2-5	2-5	---	---	---
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-8	2-8	2-10	2-10	2-8	5-10	2-10
Black greasewood	SAVE4	40-60	5-15	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	2-5	---	---	2-5	---	---
Big sagebrush	ARTR2	---	---	10-15	10-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-10	2-5	5-15	5-15	2-5	2-5	2-5

Range site number	O24X008N	O24X007N	O25X019N	O25X019N	O24X007N	O25X003N	O25X006N
Potential production (lb/acre):							
Favorable years	800	1,900	800	800	1,900	2,500	1,600
Normal years	600	1,400	600	600	1,400	1,900	1,300
Unfavorable years	400	800	400	400	800	1,200	800

121.--Pernog-Rock outcrop association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Pernog	Rock outcrop	1	2	3	4
Bluebunch wheatgrass	AGSP	10-20	---	15-40	---	15-40	5-10
Pine bluegrass	POSC	5-10	---	---	---	---	---
Thurber needlegrass	STTH2	10-15	---	---	---	15-40	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	2-5	---
Indian ricegrass	ORHY	2-5	---	---	---	---	---
Idaho fescue	FEID	---	---	20-40	X	---	5-15
Bluegrass	POA++	---	---	2-10	---	5-10	---
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Mountain brome	BRMA4	---	---	---	X	---	---
Slender wheatgrass	AGTR	---	---	---	X	---	---
Webber ricegrass	ORWE	---	---	---	---	5-15	---
Columbia needlegrass	STCO3	---	---	---	---	---	5-10
Western needlegrass	STOC2	---	---	---	---	---	5-10
Other perennial grasses	PPGG	1-5	---	2-10	X	1-10	5-10
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---	---
Horsemint	MONAR	---	---	---	X	---	---
Geranium	GERAN	---	---	---	X	---	---
Lupine	LUPIN	---	---	---	X	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	10-20	---	2-10	X	5-10	10-15
Curlleaf mountainmahogany	CELE3	5-10	---	---	---	---	5-10
Mountain big sagebrush	ARTRV	1-5	---	---	---	---	5-10
Snowberry	SYMPH	1-5	---	---	X	---	1-5
Big sagebrush	ARTR2	---	---	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Low sagebrush	ARAR8	---	---	---	---	15-25	---
Other shrubs	SSSS	5-10	---	---	X	5-15	5-10
Quaking aspen	POTR5	---	---	---	X	---	---
Range site number		O28B042N	None	O25X027N	O25X065N	O25X018N	O28B043N
Potential production (lb/acre):							
Favorable years		900	---	1,300	800	800	1,000
Normal years		600	---	900	600	600	800
Unfavorable years		400	---	600	400	400	600

131.--Zevadez-Puett-Puett, steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Zevadez	Puett	Puett, steep	1	2	3
Bluebunch wheatgrass	AGSP	10-40	---	---	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	---	---	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	---	---	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	10-30	10-30	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	---	---	2-10	2-10	2-10
Bluegrass	POA++	2-10	---	---	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	5-10	5-10	---	---	---
Other perennial grasses	PPGG	2-15	10-20	10-20	2-15	2-15	2-15
Globemallow	SPHAE	2-5	---	---	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	5-15	5-15	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	---	---	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	1-5	1-5	---	---	---
Spiny hopsage	GRSP	---	1-5	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	1-5	1-5	---	---	---
Black sagebrush	ARARN	---	5-15	5-15	---	---	---
Purple sage	SACA9	---	1-5	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	10-25	---	---	---
Other shrubs	SSSS	5-15	2-4	2-4	5-15	5-15	5-15
Range site number		O25X019N	O25X025N	O25X025N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	200	200	800	800	800
Normal years		600	150	150	600	600	600
Unfavorable years		400	100	100	400	400	400

132.--Zevadez-Soughe-Hunewill association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Zevadez	Soughe	Hunewill	1	2	3
Bluebunch wheatgrass	AGSP	10-40	X	10-40	10-40	X	X
Thurber needlegrass	STTH2	10-40	X	10-40	10-40	X	X
Basin wildrye	ELCI2	5-15	---	5-15	5-15	---	---
Indian ricegrass	ORHY	2-10	X	2-10	2-10	X	X
Webber ricegrass	ORWE	2-10	---	2-10	2-10	---	---
Bluegrass	POA++	2-10	X	2-10	2-10	X	X
Other perennial grasses	PPGG	2-15	X	2-15	2-15	X	X
Globemallow	SPHAE	2-5	---	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	X	---	---	X	X
Arrowleaf balsamroot	BASA3	---	X	---	---	X	X
Other perennial forbs	PPFF	2-10	X	2-10	2-10	X	X
Big sagebrush	ARTR2	10-15	X	10-15	10-15	X	X
Antelope bitterbrush	PUTR2	---	X	---	---	X	X
Other shrubs	SSSS	5-15	X	5-15	5-15	X	X
Utah juniper	JUOS	---	X	---	---	X	X
Range site number		O25X019N	O25X059N	O25X019N	O25X019N	O25X059N	O25X059N
Potential production (lb/acre):							
Favorable years		800	500	800	800	500	500
Normal years		600	350	600	600	350	350
Unfavorable years		400	200	400	400	200	200

133.--Zevadez-Wieland-Dewar association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Zevadez	Wieland	Dewar	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	1-5
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	15-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X003N
Potential production (lb/acre):						
Favorable years		800	800	800	800	2,500
Normal years		600	600	600	600	1,900
Unfavorable years		400	400	400	400	1,200

134.--Zevadez-Humdun-Vanwyper association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Zevadez	Humdun	Vanwyper	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	40-80	20-30	2-5	---	---
Thurber needlegrass	STTH2	10-40	10-40	5-15	15-25	---	---	---
Basin wildrye	ELCI2	5-15	5-15	2-5	---	---	---	---
Indian ricegrass	ORHY	2-10	2-10	2-5	---	---	---	---
Webber ricegrass	ORWE	2-10	2-10	---	---	5-10	---	---
Bluegrass	POA++	2-10	2-10	---	---	5-15	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---	---
Idaho fescue	FEID	---	---	---	---	10-30	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Other perennial grasses	PPGG	2-15	2-15	2-10	10-15	2-8	---	---
Globemallow	SPHAE	2-5	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---	---
Goldenweed	HAPLO2	---	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	5-10	---	---
Big sagebrush	ARTR2	10-15	10-15	2-10	10-15	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-10	1-10	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	15-25	---	---
Other shrubs	SSSS	5-15	5-15	2-8	5-10	1-8	---	---
Range site number		O25X019N	O25X019N	O25X015N	O25X014N	O25X024N	None	None
Potential production (lb/acre):								
Favorable years		800	800	1,000	1,000	350	---	---
Normal years		600	600	700	800	250	---	---
Unfavorable years		400	400	500	600	150	---	---

135.--Zevadez-Enko-Puett association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Zevadez	Enko	Puett	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	X	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	X	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	---	---
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	X	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	---	---
Bluegrass	POA++	2-10	2-10	---	2-10	X	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	X	---
Globemallow	SPHAE	2-5	2-5	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	X	---
Arrowleaf balsamroot	BASA3	---	---	---	---	X	---
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	X	---
Big sagebrush	ARTR2	10-15	10-15	---	10-15	X	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	X	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	X	---
Utah juniper	JUOS	---	---	---	---	X	---
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X059N	None
Potential production (lb/acre):							
Favorable years		800	800	200	800	500	---
Normal years		600	600	150	600	350	---
Unfavorable years		400	400	100	400	200	---

141.--Kelk-Kelk, occasionally flooded-Enko association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Kelk	Kelk, occasionally flooded	Enko	1	2	3
Bluebunch wheatgrass	AGSP	10-40	---	10-40	---	10-40	---
Thurber needlegrass	STTH2	10-40	---	10-40	---	10-40	---
Basin wildrye	ELCI2	5-15	50-60	5-15	40-60	5-15	50-60
Indian ricegrass	ORHY	2-10	---	2-10	---	2-10	---
Webber ricegrass	ORWE	2-10	---	2-10	---	2-10	---
Bluegrass	POA++	2-10	---	2-10	---	2-10	---
Western wheatgrass	AGSM	---	5-15	---	---	---	5-15
Alkali sacaton	SPAI	---	---	---	15-30	---	---
Inland saltgrass	DIST	---	---	---	5-10	---	---
Other perennial grasses	PPGG	2-15	5-20	2-15	2-8	2-15	5-20
Globemallow	SPHAE	2-5	---	2-5	---	2-5	---
Other perennial forbs	PPFF	2-10	2-8	2-10	2-8	2-10	2-8
Big sagebrush	ARTR2	10-15	---	10-15	---	10-15	---
Basin big sagebrush	ARTRT*	---	15-20	---	---	---	15-20
Black greasewood	SAVE4	---	2-10	---	5-15	---	2-10
Rubber rabbitbrush	CHNA2	---	2-5	---	---	---	2-5
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	1-4	5-15	2-5	5-15	1-4
Range site number		O25X019N	O24X006N	O25X019N	O24X007N	O25X019N	O24X006N
Potential production (lb/acre):							
Favorable years		800	1,500	800	1,900	800	1,500
Normal years		600	1,100	600	1,400	600	1,100
Unfavorable years		400	600	400	800	400	600

142.--Kelk-Dacker-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Kelk	Dacker	Puett	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	---	5-15
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	2-15	5-20
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15	1-4
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O24X006N
Potential production (lb/acre):								
Favorable years		800	800	200	800	800	800	1,500
Normal years		600	600	150	600	600	600	1,100
Unfavorable years		400	400	100	400	400	400	600

145.--Kelk-Ocala-Moranch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Kelk	Ocala	Moranch	1	2
Basin wildrye	ELCI2	50-60	40-60	15-20	40-60	15-20
Western wheatgrass	AGSM	5-15	---	---	---	---
Alkali sacaton	SPAI	---	15-30	---	15-30	---
Inland saltgrass	DIST	---	5-10	2-10	5-10	2-10
Bottlebrush squirreltail	SIHY	---	---	2-10	---	2-10
Other perennial grasses	PPGG	5-20	2-8	2-4	2-8	2-4
Perennial forbs	PPFF	2-8	2-8	2-8	2-8	2-8
Basin big sagebrush	ARTRT*	15-20	---	---	---	---
Black greasewood	SAVE4	2-10	5-15	40-60	5-15	40-60
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Rabbitbrush	CHRYS9	---	2-5	---	2-5	---
Other shrubs	SSSS	1-4	2-5	5-10	2-5	5-10
Range site number		O24X006N	O24X007N	O24X008N	O24X007N	O24X008N
Potential production (lb/acre):						
Favorable years		1,500	1,900	800	1,900	800
Normal years		1,100	1,400	600	1,400	600
Unfavorable years		600	800	400	800	400

146.--Kelk-Bloor-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Kelk	Bloor	Ocala	1	2
Basin wildrye	ELCI2	50-60	40-60	40-60	---	15-20
Western wheatgrass	AGSM	5-15	---	---	---	---
Alkali sacaton	SPAI	---	15-30	15-30	---	---
Inland saltgrass	DIST	---	5-10	5-10	75-95	2-10
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10
Other perennial grasses	PPGG	5-20	2-8	2-8	2-5	2-4
Perennial forbs	PPFF	2-8	2-8	2-8	1-4	2-8
Basin big sagebrush	ARTRT*	15-20	---	---	---	---
Black greasewood	SAVE4	2-10	5-15	5-15	---	40-60
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Rabbitbrush	CHRYS9	---	2-5	2-5	---	---
Other shrubs	SSSS	1-4	2-5	2-5	2-8	5-10
Range site number		O24X006N	O24X007N	O24X007N	O26X002N	O24X008N
Potential production (lb/acre):						
Favorable years		1,500	1,900	1,900	2,000	800
Normal years		1,100	1,400	1,400	1,700	600
Unfavorable years		600	800	800	1,200	400

149.--Kelk-Sonoma association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Kelk	Sonoma	1	2	3
Basin wildrye	ELCI2	50-60	50-60	5-15	40-60	50-60
Western wheatgrass	AGSM	5-15	---	---	---	---
Nevada bluegrass	PONE3	---	5-15	---	---	5-15
Mat muhly	MURI	---	2-10	---	---	2-10
Sedge	CAREX	---	1-5	---	---	1-5
Bluebunch wheatgrass	AGSP	---	---	10-40	---	---
Thurber needlegrass	STTH2	---	---	10-40	---	---
Indian ricegrass	ORHY	---	---	2-10	---	---
Webber ricegrass	ORWE	---	---	2-10	---	---
Bluegrass	POA++	---	---	2-10	---	---
Alkali sacaton	SPAI	---	---	---	15-30	---
Inland saltgrass	DIST	---	---	---	5-10	---
Other perennial grasses	PPGG	5-20	15-20	2-15	2-8	15-20
Globemallow	SPHAE	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	5-10	2-10	2-8	5-10
Basin big sagebrush	ARTRT*	15-20	10-15	---	---	10-15
Black greasewood	SAVE4	2-10	---	---	5-15	---
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Big sagebrush	ARTR2	---	---	10-15	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---
Other shrubs	SSSS	1-4	2-5	5-15	2-5	2-5
Range site number		O24X006N	O25X003N	O25X019N	O24X007N	O25X003N
Potential production (lb/acre):						
Favorable years		1,500	2,500	800	1,900	2,500
Normal years		1,100	1,900	600	1,400	1,900
Unfavorable years		600	1,200	400	800	1,200

151.--Dewar-Gance-Wieland association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Dewar	Gance	Wieland	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	15-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	15-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---	10-30
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	5-15	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	5-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	1-10	10-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-10	5-15
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	---
Low sagebrush	ARAR8	---	---	---	---	15-25	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	2-4
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X018N	O25X025N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	200
Normal years		600	600	600	600	600	150
Unfavorable years		400	400	400	400	400	100

152.--Dewar-Zevadez-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Dewar	Zevadez	Puett	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	2-15	---
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10	---
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15	---
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	None
Potential production (lb/acre):								
Favorable years		800	800	200	800	800	800	---
Normal years		600	600	150	600	600	600	---
Unfavorable years		400	400	100	400	400	400	---

153.--Dewar-Gance-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Dewar	Gance	Bilbo	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	40-80	10-40	15-30	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	5-15	10-40	1-10	10-40	---
Basin wildrye	ELCI2	5-15	5-15	2-5	5-15	2-10	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-5	2-10	---	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	---	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	---	2-10	---
Idaho fescue	FEID	---	---	---	---	15-40	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	2-15	2-15	2-10	2-15	5-10	2-15	15-20
Globemallow	SPHAE	2-5	2-5	---	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	1-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	---	5-10	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-15	2-10	5-10
Big sagebrush	ARTR2	10-15	10-15	2-10	10-15	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	1-10	---	5-15	---	---
Mountain big sagebrush	ARTRV	---	---	---	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	2-8	5-15	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X015N	O25X019N	O25X012N	O25X019N	O25X003N
Potential production (lb/acre):								
Favorable years		800	800	1,000	800	1,200	800	2,500
Normal years		600	600	700	600	900	600	1,900
Unfavorable years		400	400	500	400	600	400	1,200

154.--Dewar-Chiara-Gance association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Dewar	Chiara	Gance	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH	10-40	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	800	800	800	800	800
Normal years		600	600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400	400

161.--Sonoma-Sonoma, rarely flooded association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Sonoma	Sonoma, rarely flooded	1	2
Basin wildrye	ELCI2	50-60	50-60	50-60	50-60
Nevada bluegrass	PONE3	5-15	5-15	---	5-15
Mat muhly	MURI	2-10	2-10	---	2-10
Sedge	CAREX	1-5	1-5	---	1-5
Western wheatgrass	AGSM	---	---	5-15	---
Other perennial grasses	PPGG	15-20	15-20	5-20	15-20
Perennial forbs	PPFF	5-10	5-10	2-8	5-10
Basin big sagebrush	ARTRT*	10-15	10-15	15-20	10-15
Black greasewood	SAVE4	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---
Other shrubs	SSSS	2-5	2-5	1-4	2-5
Range site number		O25X003N	O25X003N	O24X006N	O25X003N
Potential production (lb/acre):					
Favorable years		2,500	2,500	1,500	2,500
Normal years		1,900	1,900	1,100	1,900
Unfavorable years		1,200	1,200	600	1,200

162.--Sonoma-Hussa association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Sonoma	Hussa	1	2	3	4
Basin wildrye	ELCI2	50-60	---	---	---	---	15-20
Western wheatgrass	AGSM	5-15	---	---	---	---	---
Tufted hairgrass	DECA5	---	30-60	30-60	---	30-60	---
Nevada bluegrass	PONE3	---	5-10	5-10	5-10	5-10	---
Alpine timothy	PHAL2	---	5-10	5-10	---	5-10	---
Sedge	CAREX	---	5-10	5-10	---	5-10	---
Wildrye	ELYMU	---	---	---	30-60	---	---
Inland saltgrass	DIST	---	---	---	5-10	---	2-10
Mat muhly	MURI	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-20	2-10	2-10	5-15	2-10	2-4
Sierra clover	TRWO	---	2-5	2-5	2-5	2-5	---
Cinquefoil	POTEN	---	2-5	2-5	---	2-5	---
Other perennial forbs	PPFF	2-8	10-20	10-20	5-10	10-20	2-8
Basin big sagebrush	ARTRT*	15-20	---	---	2-5	---	---
Black greasewood	SAVE4	2-10	---	---	---	---	40-60
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---	---
Willow	SALIX	---	---	---	5-10	---	---
Silver sagebrush	ARCA13	---	---	---	2-5	---	---
Other shrubs	SSSS	1-4	2-5	2-5	2-8	2-5	5-10
Range site number		O24X006N	O25X005N	O25X005N	O25X001N	O25X005N	O24X008N
Potential production (lb/acre):							
Favorable years		1,500	2,000	2,000	3,000	2,000	800
Normal years		1,100	1,700	1,700	2,500	1,700	600
Unfavorable years		600	1,000	1,000	1,800	1,000	400

163.--Sonoma, frequently flooded-Devilsgait-Sonoma association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sonoma, frequently flooded	Devilsgait	Sonoma	1	2	3
Alkali muhly	MUAS	10-20	---	---	---	---	---
Alkali sacaton	SPAI	15-40	---	---	15-30	---	---
Basin wildrye	ELCI2	2-5	---	50-60	40-60	---	---
Inland saltgrass	DIST	5-10	5-10	---	5-10	5-10	---
Alkali bluegrass	POJU	5-15	---	---	---	---	---
Alkali cordgrass	SPGR	5-10	---	---	---	---	---
Arrowgrass	TRIGL	1-3	---	---	---	---	---
Wildrye	ELYMU	---	30-60	---	---	30-60	---
Nevada bluegrass	PONE3	---	5-10	---	---	5-10	5-10
Mat muhly	MURI	---	2-10	---	---	2-10	---
Western wheatgrass	AGSM	---	---	5-15	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-15	5-15	5-20	2-8	5-15	2-10
Sierra clover	TRWO	---	2-5	---	---	2-5	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-5	5-10	2-8	2-8	5-10	10-20
Willow	SALIX	---	5-10	---	---	5-10	---
Basin big sagebrush	ARTRT*	---	2-5	15-20	---	2-5	---
Silver sagebrush	ARCA13	---	2-5	---	---	2-5	---
Black greasewood	SAVE4	---	---	2-10	5-15	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Other shrubs	SSSS	1-5	2-8	1-4	2-5	2-8	2-5
Range site number		O24X009N	O25X001N	O24X006N	O24X007N	O25X001N	O25X005N
Potential production (lb/acre):							
Favorable years		1,500	3,000	1,500	1,900	3,000	2,000
Normal years		1,000	2,500	1,100	1,400	2,500	1,700
Unfavorable years		700	1,800	600	800	1,800	1,000

166.--Sonoma-Devilsgait association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Sonoma	Devilsgait	1	2	3
Basin wildrye	ELCI2	50-60	---	50-60	40-60	50-60
Western wheatgrass	AGSM	5-15	---	---	---	---
Wildrye	ELYMU	---	30-60	---	---	---
Nevada bluegrass	PONE3	---	5-10	5-15	---	5-15
Inland saltgrass	DIST	---	5-10	---	5-10	---
Mat muhly	MURI	---	2-10	2-10	---	2-10
Sedge	CAREX	---	---	1-5	---	1-5
Alkali sacaton	SPAI	---	---	---	15-30	---
Other perennial grasses	PPGG	5-20	5-15	15-20	2-8	15-20
Sierra clover	TRWO	---	2-5	---	---	---
Other perennial forbs	PPFF	2-8	5-10	5-10	2-8	5-10
Basin big sagebrush	ARTRT*	15-20	2-5	10-15	---	10-15
Black greasewood	SAVE4	2-10	---	---	5-15	---
Rubber rabbitbrush	CHNA2	2-5	---	---	---	---
Willow	SALIX	---	5-10	---	---	---
Silver sagebrush	ARCA13	---	2-5	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---
Other shrubs	SSSS	1-4	2-8	2-5	2-5	2-5
Range site number		O24X006N	O25X001N	O25X003N	O24X007N	O25X003N
Potential production (lb/acre):						
Favorable years		1,500	3,000	2,500	1,900	2,500
Normal years		1,100	2,500	1,900	1,400	1,900
Unfavorable years		600	1,800	1,200	800	1,200

167.--Sonoma-Kelk association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Sonoma	Kelk	1	2
Basin wildrye	ELCI2	50-60	50-60	40-60	50-60
Nevada bluegrass	PONE3	5-15	---	---	5-15
Mat muhly	MURI	2-10	---	---	2-10
Sedge	CAREX	1-5	---	---	1-5
Western wheatgrass	AGSM	---	5-15	---	---
Alkali sacaton	SPAI	---	---	15-30	---
Inland saltgrass	DIST	---	---	5-10	---
Other perennial grasses	PPGG	15-20	5-20	2-8	15-20
Perennial forbs	PPFF	5-10	2-8	2-8	5-10
Basin big sagebrush	ARTRT*	10-15	15-20	---	10-15
Black greasewood	SAVE4	---	2-10	5-15	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---
Other shrubs	SSSS	2-5	1-4	2-5	2-5
Range site number		O25X003N	O24X006N	O24X007N	O25X003N
Potential production (lb/acre):					
Favorable years		2,500	1,500	1,900	2,500
Normal years		1,900	1,100	1,400	1,900
Unfavorable years		1,200	600	800	1,200

171.--Hussa-Ocala-Welsum association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hussa	Ocala	Welsum	1	2
Basin wildrye	ELCI2	40-60	40-60	---	40-60	50-60
Alkali sacaton	SPAI	15-30	15-30	---	15-30	---
Inland saltgrass	DIST	5-10	5-10	---	5-10	---
Tufted hairgrass	DECA5	---	---	30-60	---	---
Nevada bluegrass	PONE3	---	---	5-10	---	5-15
Alpine timothy	PHAL2	---	---	5-10	---	---
Sedge	CAREX	---	---	5-10	---	1-5
Mat muhly	MURI	---	---	---	---	2-10
Other perennial grasses	PPGG	2-8	2-8	2-10	2-8	15-20
Sierra clover	TRWO	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-8	10-20	2-8	5-10
Black greasewood	SAVE4	5-15	5-15	---	5-15	---
Rabbitbrush	CHRYS9	2-5	2-5	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5
Range site number		O24X007N	O24X007N	O25X005N	O24X007N	O25X003N
Potential production (lb/acre):						
Favorable years		1,900	1,900	2,000	1,900	2,500
Normal years		1,400	1,400	1,700	1,400	1,900
Unfavorable years		800	800	1,000	800	1,200

172.--Hussa-Halleck-Welsum association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hussa	Halleck	Welsum	1	2	3
Tufted hairgrass	DECA5	30-60	30-60	30-60	---	---	---
Nevada bluegrass	PONE3	5-10	5-10	5-10	2-10	---	---
Alpine timothy	PHAL2	5-10	5-10	5-10	---	---	---
Sedge	CAREX	5-10	5-10	5-10	---	---	X
Bluebunch wheatgrass	AGSP	---	---	---	20-30	---	---
Thurber needlegrass	STTH2	---	---	---	15-25	---	---
Basin wildrye	ELCI2	---	---	---	---	40-60	---
Alkali sacaton	SPAI	---	---	---	---	15-30	---
Inland saltgrass	DIST	---	---	---	---	5-10	---
Bluegrass	POA++	---	---	---	---	---	X
Rush	JUNCU	---	---	---	---	---	X
Streambank wheatgrass	AGRI	---	---	---	---	---	X
Western wheatgrass	AGSM	---	---	---	---	---	X
Other perennial grasses	PPGG	2-10	2-10	2-10	10-15	2-8	X
Sierra clover	TRWO	2-5	2-5	2-5	---	---	---
Cinquefoil	POTEN	2-5	2-5	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Other perennial forbs	PPFF	10-20	10-20	10-20	2-5	2-8	X
Big sagebrush	ARTR2	---	---	---	10-15	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-10	---	---
Black greasewood	SAVE4	---	---	---	---	5-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Woods rose	ROWO	---	---	---	---	---	X
Currant	RIBES	---	---	---	---	---	X
Willow	SALIX	---	---	---	---	---	X
Other shrubs	SSSS	2-5	2-5	2-5	5-10	2-5	X
Cottonwood	POPUL	---	---	---	---	---	X
Range site number		O25X005N	O25X005N	O25X005N	O25X014N	O24X007N	O25X053N
Potential production (lb/acre):							
Favorable years		2,000	2,000	2,000	1,000	1,900	2,500
Normal years		1,700	1,700	1,700	800	1,400	2,000
Unfavorable years		1,000	1,000	1,000	600	800	1,500

181.--Crooked Creek-Crooked Creek, gravelly substratum-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Crooked Creek	Crooked Creek, gravelly substratum	Ocala	1	2
Tufted hairgrass	DECA5	30-60	30-60	---	30-60	---
Nevada bluegrass	PONE3	5-10	5-10	---	5-10	5-10
Alpine timothy	PHAL2	5-10	5-10	---	5-10	---
Sedge	CAREX	5-10	5-10	---	5-10	---
Basin wildrye	ELCI2	---	---	40-60	---	---
Alkali sacaton	SPAI	---	---	15-30	---	---
Inland saltgrass	DIST	---	---	5-10	---	5-10
Wildrye	ELYMU	---	---	---	---	30-60
Mat muhly	MURI	---	---	---	---	2-10
Other perennial grasses	PPGG	2-10	2-10	2-8	2-10	5-15
Sierra clover	TRWO	2-5	2-5	---	2-5	2-5
Cinquefoil	POTEN	2-5	2-5	---	2-5	---
Other perennial forbs	PPFF	10-20	10-20	2-8	10-20	5-10
Black greasewood	SAVE4	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Willow	SALIX	---	---	---	---	5-10
Basin big sagebrush	ARTRT*	---	---	---	---	2-5
Silver sagebrush	ARCA13	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-8
Range site number		O25X005N	O25X005N	O24X007N	O25X005N	O25X001N
Potential production (lb/acre):						
Favorable years		2,000	2,000	1,900	2,000	3,000
Normal years		1,700	1,700	1,400	1,700	2,500
Unfavorable years		1,000	1,000	800	1,000	1,800

182.--Crooked Creek-Hussa-Alburz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Crooked Creek	Hussa	Alburz	1	2	3
Basin wildrye	ELCI2	50-60	50-60	50-60	---	---	50-60
Nevada bluegrass	PONE3	5-15	5-15	5-15	5-10	5-10	---
Mat muhly	MURI	2-10	2-10	2-10	---	---	---
Sedge	CAREX	1-5	1-5	1-5	5-10	5-10	---
Tufted hairgrass	DECA5	---	---	---	30-60	30-60	---
Alpine timothy	PHAL2	---	---	---	5-10	5-10	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Other perennial grasses	PPGG	15-20	15-20	15-20	2-10	2-10	5-20
Sierra clover	TRWO	---	---	---	2-5	2-5	---
Cinquefoil	POTEN	---	---	---	2-5	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-10	10-20	10-20	2-8
Basin big sagebrush	ARTRT*	10-15	10-15	10-15	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5	1-4
Range site number		O25X003N	O25X003N	O25X003N	O25X005N	O25X005N	O24X006N
Potential production (lb/acre):							
Favorable years		2,500	2,500	2,500	2,000	2,000	1,500
Normal years		1,900	1,900	1,900	1,700	1,700	1,100
Unfavorable years		1,200	1,200	1,200	1,000	1,000	600

183.--Crooked Creek-Welsum association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Crooked Creek	Welsum	1	2
Tufted hairgrass	DECA5	30-60	30-60	30-60	30-60
Nevada bluegrass	PONE3	5-10	5-10	5-10	5-10
Alpine timothy	PHAL2	5-10	5-10	5-10	5-10
Sedge	CAREX	5-10	5-10	5-10	5-10
Other perennial grasses	PPGG	2-10	2-10	2-10	2-10
Sierra clover	TRWO	2-5	2-5	2-5	2-5
Cinquefoil	POTEN	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	10-20	10-20	10-20	10-20
Shrubs	SSSS	2-5	2-5	2-5	2-5
Range site number		O25X005N	O25X005N	O25X005N	O25X005N
Potential production (lb/acre):					
Favorable years		2,000	2,000	2,000	2,000
Normal years		1,700	1,700	1,700	1,700
Unfavorable years		1,000	1,000	1,000	1,000

184.--Crooked Creek silty clay loam, 0 to 2 percent slopes, frequently flooded

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Crooked Creek	1	2
Tufted hairgrass	DECA5	30-60	30-60	---
Nevada bluegrass	PONE3	5-10	5-10	5-15
Alpine timothy	PHAL2	5-10	5-10	---
Sedge	CAREX	5-10	5-10	1-5
Basin wildrye	ELCI2	---	---	50-60
Mat muhly	MURI	---	---	2-10
Other perennial grasses	PPGG	2-10	2-10	15-20
Sierra clover	TRWO	2-5	2-5	---
Cinquefoil	POTEN	2-5	2-5	---
Other perennial forbs	PPFF	10-20	10-20	5-10
Basin big sagebrush	ARTRT*	---	---	10-15
Other shrubs	SSSS	2-5	2-5	2-5
Range site number		O25X005N	O25X005N	O25X003N
Potential production (lb/acre):				
Favorable years		2,000	2,000	2,500
Normal years		1,700	1,700	1,900
Unfavorable years		1,000	1,000	1,200

187.--Crooked Creek-Devilsgait-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Crooked Creek	Devilsgait	Ocala	1	2	3	4
Tufted hairgrass	DECA5	30-60	---	---	---	---	---	---
Nevada bluegrass	PONE3	5-10	5-10	---	---	5-15	---	40-60
Alpine timothy	PHAL2	5-10	---	---	---	---	---	20-40
Sedge	CAREX	5-10	---	---	---	1-5	---	5-15
Wildrye	ELYMU	---	30-60	---	---	---	---	---
Inland saltgrass	DIST	---	5-10	5-10	---	---	5-10	---
Mat muhly	MURI	---	2-10	---	---	2-10	---	5-15
Basin wildrye	ELCI2	---	---	40-60	50-60	50-60	40-60	5-15
Alkali sacaton	SPAI	---	---	15-30	---	---	15-30	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---	---
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-10	5-15	2-8	5-20	15-20	2-8	2-8
Sierra clover	TRWO	2-5	2-5	---	---	---	---	---
Cinquefoil	POTEN	2-5	---	---	---	---	---	2-5
Other perennial forbs	PPFF	10-20	5-10	2-8	2-8	5-10	2-8	2-10
Willow	SALIX	---	5-10	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	2-5	---	15-20	10-15	---	---
Silver sagebrush	ARCA13	---	2-5	---	---	---	---	---
Black greasewood	SAVE4	---	---	5-15	2-10	---	5-15	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	2-5	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Other shrubs	SSSS	2-5	2-8	2-5	1-4	2-5	2-5	2-5

Range site number	O25X005N	O25X001N	O24X007N	O24X006N	O25X003N	O24X007N	O25X006N
Potential production (lb/acre):							
Favorable years	2,000	3,000	1,900	1,500	2,500	1,900	1,600
Normal years	1,700	2,500	1,400	1,100	1,900	1,400	1,300
Unfavorable years	1,000	1,800	800	600	1,200	800	800

189.--Crooked Creek, gravelly substratum-Crooked Creek association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Crooked Creek, gravelly substratum	Crooked Creek	1	2	3
Tufted hairgrass	DECA5	30-60	30-60	30-60	---	30-60
Nevada bluegrass	PONE3	5-10	5-10	5-10	40-60	5-10
Alpine timothy	PHAL2	5-10	5-10	5-10	20-40	5-10
Sedge	CAREX	5-10	5-10	5-10	5-15	5-10
Mat muhly	MURI	---	---	---	5-15	---
Basin wildrye	ELCI2	---	---	---	5-15	---
Meadow barley	HOBR2	---	---	---	2-5	---
Other perennial grasses	PPGG	2-10	2-10	2-10	2-8	2-10
Sierra clover	TRWO	2-5	2-5	2-5	---	2-5
Cinquefoil	POTEN	2-5	2-5	2-5	2-5	2-5
Perennial forbs	PPFF	10-20	10-20	10-20	2-10	10-20
Shrubs	SSSS	2-5	2-5	2-5	2-5	2-5
Range site number		O25X005N	O25X005N	O25X005N	O25X006N	O25X005N
Potential production (lb/acre):						
Favorable years		2,000	2,000	2,000	1,600	2,000
Normal years		1,700	1,700	1,700	1,300	1,700
Unfavorable years		1,000	1,000	1,000	800	1,000

191.--Tustell-Gance-Mahala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Tustell	Gance	Mahala	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	15-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	15-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	---	2-10	2-10	2-10	10-30
Webber ricegrass	ORWE	2-10	2-10	5-15	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	5-10	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	1-10	2-15	2-15	2-15	10-20
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-10	2-10	5-10	2-10	2-10	2-10	5-15
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15	---
Low sagebrush	ARAR8	---	---	15-25	---	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15	2-4
Range site number		O25X019N	O25X019N	O25X018N	O25X019N	O25X019N	O25X019N	O25X025N
Potential production (lb/acre):								
Favorable years		800	800	800	800	800	800	200
Normal years		600	600	600	600	600	600	150
Unfavorable years		400	400	400	400	400	400	100

198.--Tustell-Tustell, strongly sloping-Gance association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name			Inclusion number--
		Tustell	Tustell, strongly sloping	Gance	1
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	---	5-15
Mat muhly	MURI	---	---	---	2-10
Sedge	CAREX	---	---	---	1-5
Other perennial grasses	PPGG	2-15	2-15	2-15	15-20
Globemallow	SPHAE	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X003N
Potential production (lb/acre):					
Favorable years		800	800	800	2,500
Normal years		600	600	600	1,900
Unfavorable years		400	400	400	1,200

200.--Tustell-Zevadez-Donna association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Tustell	Zevadez	Donna	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	15-40	10-40	40-80
Thurber needlegrass	STTH2	10-40	10-40	15-40	10-40	5-15
Basin wildrye	ELCI2	5-15	5-15	---	5-15	2-5
Indian ricegrass	ORHY	2-10	2-10	---	2-10	2-5
Webber ricegrass	ORWE	2-10	2-10	5-15	2-10	---
Bluegrass	POA++	2-10	2-10	5-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---
Other perennial grasses	PPGG	2-15	2-15	1-10	2-15	2-10
Globemallow	SPHAE	2-5	2-5	---	2-5	---
Balsamroot	BALSA	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	5-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	2-10
Low sagebrush	ARAR8	---	---	15-25	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-8
Range site number		O25X019N	O25X019N	O25X018N	O25X019N	O25X015N
Potential production (lb/acre):						
Favorable years		800	800	800	800	1,000
Normal years		600	600	600	600	700
Unfavorable years		400	400	400	400	500

201.--Hopeka-Cavehill association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Hopeka	Cavehill	1	2	3	4
Bluebunch wheatgrass	AGSP	X	X	---	X	X	15-30
Indian ricegrass	ORHY	X	---	---	X	X	---
Thurber needlegrass	STTH2	X	---	---	X	X	1-10
Bluegrass	POA++	X	X	---	X	X	---
Idaho fescue	FEID	---	X	---	---	---	15-40
Bottlebrush squirreltail	SIHY	---	---	---	X	X	---
Basin wildrye	ELCI2	---	---	---	---	---	2-10
Nevada bluegrass	PONE3	---	---	---	---	---	2-5
Other perennial grasses	PPGG	X	X	---	X	X	5-10
Tapertip hawksbeard	CRAC2	X	X	---	---	---	1-5
Arrowleaf balsamroot	BASA3	X	X	---	---	---	5-10
Other perennial forbs	PPFF	X	X	---	X	X	5-15
Black sagebrush	ARARN	X	---	---	---	---	---
Downy rabbitbrush	CHVIP	X	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	---	---	---
Curlleaf mountainmahogany	CELE3	---	X	---	X	X	---
Mountain big sagebrush	ARTRV	---	---	---	X	X	10-15
Antelope bitterbrush	PUTR2	---	---	---	X	X	5-15
Snowberry	SYMPH	---	---	---	X	X	---
Green ephedra	EPVI	---	---	---	X	X	---
Other shrubs	SSSS	X	X	---	X	X	5-15
Singleleaf pinyon	PIMO	X	X	---	X	X	---
Utah juniper	JUOS	X	---	---	X	X	---
Range site number		O28B060N	O28B085N	None	O28B062N	O28B062N	O25X012N
Potential production (lb/acre):							
Favorable years		400	500	---	800	800	1,200
Normal years		275	375	---	600	600	900
Unfavorable years		150	250	---	400	400	600

206.--Hopeka-Grina-Izod association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hopeka	Grina	Izod	1	2	3
Bluebunch wheatgrass	AGSP	X	X	---	X	10-40	X
Indian ricegrass	ORHY	X	X	10-15	X	2-10	X
Thurber needlegrass	STTH2	X	X	10-15	X	10-40	X
Bluegrass	POA++	X	X	2-10	X	2-10	X
Basin wildrye	ELCI2	---	---	---	---	5-15	---
Webber ricegrass	ORWE	---	---	---	---	2-10	---
Other perennial grasses	PPGG	X	X	5-20	X	2-15	X
Tapertip hawksbeard	CRAC2	X	X	---	X	---	X
Arrowleaf balsamroot	BASA3	X	X	---	X	---	X
Globemallow	SPHAE	---	---	2-5	---	2-5	---
Other perennial forbs	PPFF	X	X	2-10	X	2-10	X
Black sagebrush	ARARN	X	---	25-35	---	---	---
Downy rabbitbrush	CHVIP	X	---	---	---	---	---
Big sagebrush	ARTR2	---	X	---	X	10-15	X
Antelope bitterbrush	PUTR2	---	X	---	X	---	X
Other shrubs	SSSS	X	X	5-15	X	5-15	X
Singleleaf pinyon	PIMO	X	---	---	---	---	---
Utah juniper	JUOS	X	X	---	X	---	X
Range site number		O28B060N	O25X059N	O24X030N	O25X059N	O25X019N	O25X059N
Potential production (lb/acre):							
Favorable years		400	500	500	500	800	500
Normal years		275	350	350	350	600	350
Unfavorable years		150	200	250	200	400	200

211.--McIvey-Igdell-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		McIvey	Igdell	Bilbo	1	2	3	4
Idaho fescue	FEID	15-40	30-50	---	30-50	15-30	---	---
Bluebunch wheatgrass	AGSP	15-30	15-30	40-80	15-30	15-25	---	---
Basin wildrye	ELCI2	2-10	---	2-5	---	2-5	50-60	---
Nevada bluegrass	PONE3	2-5	---	---	---	2-5	5-15	5-10
Thurber needlegrass	STTH2	1-10	---	5-15	---	2-5	---	---
Bluegrass	POA++	---	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	2-5	---	---	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	5-15	2-10	5-15	5-15	15-20	2-10
Arrowleaf balsamroot	BASA3	5-10	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	2-5	---	---	---	---
Balsamroot	BALSA	---	2-5	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-15	5-20	2-10	5-20	10-20	5-10	10-20
Mountain big sagebrush	ARTRV	10-15	---	---	---	2-10	---	---
Antelope bitterbrush	PUTR2	5-15	1-10	1-10	1-10	20-40	---	---
Low sagebrush	ARAR8	---	10-25	---	10-25	---	---	---
Big sagebrush	ARTR2	---	---	2-10	---	---	---	---
Snowberry	SYMPH	---	---	---	---	2-5	---	---
Serviceberry	AMELA	---	---	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-15	2-8	5-15	2-8	2-5	2-5
Range site number		O25X012N	O25X017N	O25X015N	O25X017N	O25X007N	O25X003N	O25X005N
Potential production (lb/acre):								
Favorable years		1,200	1,000	1,000	1,000	1,600	2,500	2,000
Normal years		900	700	700	700	1,300	1,900	1,700
Unfavorable years		600	400	500	400	800	1,200	1,000

212.--McIvey-Eboda-Akler association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		McIvey	Eboda	Akler	1	2	3	4
Idaho fescue	FEID	15-40	20-40	---	---	2-5	---	---
Bluebunch wheatgrass	AGSP	15-30	15-40	15-40	---	30-50	---	---
Basin wildrye	ELCI2	2-10	2-5	---	50-60	5-10	---	---
Nevada bluegrass	PONE3	2-5	---	---	5-15	2-5	---	5-10
Thurber needlegrass	STTH2	1-10	---	15-40	---	2-10	---	---
Bluegrass	POA++	---	2-10	5-10	---	---	---	---
Webber ricegrass	ORWE	---	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Mat muhly	MURI	---	---	---	2-10	---	---	---
Sedge	CAREX	---	---	---	1-5	---	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-10	2-10	1-10	15-20	5-10	---	2-10
Arrowleaf balsamroot	BASA3	5-10	2-5	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	1-5	2-5	---	---	2-5	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-15	2-10	5-10	5-10	2-5	---	10-20
Mountain big sagebrush	ARTRV	10-15	---	---	---	5-10	---	---
Antelope bitterbrush	PUTR2	5-15	1-5	---	---	2-15	---	---
Big sagebrush	ARTR2	---	5-15	---	---	---	---	---
Rabbitbrush	CHRYS9	---	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	---	15-25	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---	---
Other shrubs	SSSS	5-15	---	5-15	2-5	2-10	---	2-5
Range site number		O25X012N	O25X027N	O25X018N	O25X003N	O25X009N	None	O25X005N
Potential production (lb/acre):								
Favorable years		1,200	1,300	800	2,500	1,300	---	2,000
Normal years		900	900	600	1,900	900	---	1,700
Unfavorable years		600	600	400	1,200	700	---	1,000

213.--McIvey-Quarz-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		McIvey	Quarz	Rock outcrop	1	2	3	4
Idaho fescue	FEID	15-40	2-5	---	30-50	20-40	30-60	---
Bluebunch wheatgrass	AGSP	15-30	30-50	---	15-30	15-40	5-10	---
Basin wildrye	ELCI2	2-10	5-10	---	---	2-5	---	50-60
Nevada bluegrass	PONE3	2-5	2-5	---	---	---	2-5	5-15
Thurber needlegrass	STTH2	1-10	2-10	---	---	---	---	---
Bluegrass	POA++	---	---	---	2-10	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---	---
Mountain brome	BRMA4	---	---	---	---	---	2-5	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	5-10	---	5-15	2-10	2-10	15-20
Arrowleaf balsamroot	BASA3	5-10	2-5	---	---	2-5	2-5	---
Tapertip hawksbeard	CRAC2	1-5	2-5	---	---	2-5	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---	---
Hawksbeard	CREPI	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-15	2-5	---	5-20	2-10	2-5	5-10
Mountain big sagebrush	ARTRV	10-15	5-10	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	5-15	2-15	---	1-10	1-5	2-5	---
Low sagebrush	ARAR8	---	---	---	10-25	---	---	---
Big sagebrush	ARTR2	---	---	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Snowberry	SYMPH	---	---	---	---	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	2-10	---	5-15	---	2-5	2-5
Range site number		O25X012N	O25X009N	None	O25X017N	O25X027N	O25X010N	O25X003N
Potential production (lb/acre):								
Favorable years		1,200	1,300	---	1,000	1,300	1,400	2,500
Normal years		900	900	---	700	900	1,000	1,900
Unfavorable years		600	700	---	400	600	700	1,200

215.--McIvey-Short Creek-Cotant association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		McIvey	Short Creek	Cotant	1	2
Idaho fescue	FEID	15-40	---	30-50	---	30-60
Bluebunch wheatgrass	AGSP	15-30	40-80	15-30	40-80	5-10
Basin wildrye	ELCI2	2-10	2-5	---	2-5	---
Nevada bluegrass	PONE3	2-5	---	---	---	2-5
Thurber needlegrass	STTH2	1-10	5-15	---	5-15	---
Indian ricegrass	ORHY	---	2-5	---	2-5	---
Bluegrass	POA++	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---
Mountain brome	BRMA4	---	---	---	---	2-5
Cusick bluegrass	POCU3	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	2-10	5-15	2-10	2-10
Arrowleaf balsamroot	BASA3	5-10	---	---	---	2-5
Tapertip hawksbeard	CRAC2	1-5	2-5	---	2-5	---
Balsamroot	BALSA	---	---	2-5	---	---
Hawksbeard	CREPI	---	---	---	---	2-5
Other perennial forbs	PPFF	5-15	2-10	5-20	2-10	2-5
Mountain big sagebrush	ARTRV	10-15	---	---	---	2-5
Antelope bitterbrush	PUTR2	5-15	1-10	1-10	1-10	2-5
Big sagebrush	ARTR2	---	2-10	---	2-10	---
Low sagebrush	ARAR8	---	---	10-25	---	---
Snowberry	SYMPH	---	---	---	---	2-5
Other shrubs	SSSS	5-15	2-8	5-15	2-8	2-5
Range site number		O25X012N	O25X015N	O25X017N	O25X015N	O25X010N
Potential production (lb/acre):						
Favorable years		1,200	1,000	1,000	1,000	1,400
Normal years		900	700	700	700	1,000
Unfavorable years		600	500	400	500	700

218.--McIvey-Stampede-Heechee association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		McIvey	Stampede	Heechee	1	2	3	4
Idaho fescue	FEID	15-40	---	15-30	15-30	15-40	---	---
Bluebunch wheatgrass	AGSP	15-30	20-30	15-25	15-25	15-30	---	20-30
Basin wildrye	ELCI2	2-10	---	2-5	2-5	2-10	50-60	---
Nevada bluegrass	PONE3	2-5	2-10	2-5	2-5	2-5	5-15	2-10
Thurber needlegrass	STTH2	1-10	15-25	2-5	2-5	1-10	---	15-25
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-10	10-15	5-15	5-15	5-10	15-20	10-15
Arrowleaf balsamroot	BASA3	5-10	2-5	---	---	5-10	---	2-5
Tapertip hawksbeard	CRAC2	1-5	2-5	---	---	1-5	---	2-5
Other perennial forbs	PPFF	5-15	2-5	10-20	10-20	5-15	5-10	2-5
Mountain big sagebrush	ARTRV	10-15	---	2-10	2-10	10-15	---	---
Antelope bitterbrush	PUTR2	5-15	1-10	20-40	20-40	5-15	---	1-10
Big sagebrush	ARTR2	---	10-15	---	---	---	---	10-15
Snowberry	SYMPH	---	---	2-5	2-5	---	---	---
Serviceberry	AMELA	---	---	2-5	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-10	2-8	2-8	5-15	2-5	5-10
Range site number		O25X012N	O25X014N	O25X007N	O25X007N	O25X012N	O25X003N	O25X014N
Potential production (lb/acre):								
Favorable years		1,200	1,000	1,600	1,600	1,200	2,500	1,000
Normal years		900	800	1,300	1,300	900	1,900	800
Unfavorable years		600	600	800	800	600	1,200	600

219.--McIvey-Chen-Tweener association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		McIvey	Chen	Tweener	1	2	3	4
Idaho fescue	FEID	15-40	30-50	15-30	20-40	2-5	30-50	---
Bluebunch wheatgrass	AGSP	15-30	15-30	15-25	15-40	30-50	15-30	---
Basin wildrye	ELCI2	2-10	---	2-5	2-5	5-10	---	50-60
Nevada bluegrass	PONE3	2-5	---	2-5	---	2-5	---	5-15
Thurber needlegrass	STTH2	1-10	---	2-5	---	2-10	---	---
Bluegrass	POA++	---	2-10	---	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	2-5	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	5-15	5-15	2-10	5-10	5-15	15-20
Arrowleaf balsamroot	BASA3	5-10	---	---	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	2-5	2-5	---	---
Balsamroot	BALSA	---	2-5	---	---	---	2-5	---
Other perennial forbs	PPFF	5-15	5-20	10-20	2-10	2-5	5-20	5-10
Mountain big sagebrush	ARTRV	10-15	---	2-10	---	5-10	---	---
Antelope bitterbrush	PUTR2	5-15	1-10	20-40	1-5	2-15	1-10	---
Low sagebrush	ARAR8	---	10-25	---	---	---	10-25	---
Snowberry	SYMPH	---	---	2-5	---	---	---	---
Serviceberry	AMELA	---	---	2-5	---	---	---	---
Big sagebrush	ARTR2	---	---	---	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	2-8	---	2-10	5-15	2-5
Range site number		O25X012N	O25X017N	O25X007N	O25X027N	O25X009N	O25X017N	O25X003N
Potential production (lb/acre):								
Favorable years		1,200	1,000	1,600	1,300	1,300	1,000	2,500
Normal years		900	700	1,300	900	900	700	1,900
Unfavorable years		600	400	800	600	700	400	1,200

221.--Enko-Kelk-Enko, very fine sandy loam association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Enko	Kelk	Enko very fine sandy loam	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	10-30	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	---	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	2-15	2-15	2-15	10-20	2-15	2-15	15-20
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-15	2-10	2-10	5-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X003N
Potential production (lb/acre):								
Favorable years		800	800	800	200	800	800	2,500
Normal years		600	600	600	150	600	600	1,900
Unfavorable years		400	400	400	100	400	400	1,200

222.--Enko-Zevadez-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Enko	Zevadez	Puett	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	200	800	800	800	800
Normal years		600	600	150	600	600	600	600
Unfavorable years		400	400	100	400	400	400	400

223.--Enko-Kelk-Connel association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Enko	Kelk	Connel	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	5-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	1-4
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O24X006N
Potential production (lb/acre):						
Favorable years		800	800	800	800	1,500
Normal years		600	600	600	600	1,100
Unfavorable years		400	400	400	400	600

224.--Enko-Enko, gravelly association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Enko, gravelly	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

225.--Enko-Hunnton association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Enko	Hunnton	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	15-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	15-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	---	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	5-15	2-10
Bluegrass	POA++	2-10	2-10	2-10	5-10	2-10
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---
Other perennial grasses	PPGG	2-15	2-15	2-15	1-10	2-15
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5
Balsamroot	BALSA	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15
Low sagebrush	ARAR8	---	---	---	15-25	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X018N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	800	800	800
Normal years		600	600	600	600	600
Unfavorable years		400	400	400	400	400

226.--Enko-Rad association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Enko	Rad	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	800
Normal years		600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400

227.--Enko-Wieland-Enko, moderately steep association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Enko	Wieland	Enko, moderately steep	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	800
Normal years		600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400

228.--Enko-Kelk association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Kelk	1	2
Bluebunch wheatgrass	AGSP	10-40	---	10-40	---
Thurber needlegrass	STTH2	10-40	---	10-40	---
Basin wildrye	ELCI2	5-15	50-60	5-15	50-60
Indian ricegrass	ORHY	2-10	---	2-10	---
Webber ricegrass	ORWE	2-10	---	2-10	---
Bluegrass	POA++	2-10	---	2-10	---
Western wheatgrass	AGSM	---	5-15	---	---
Nevada bluegrass	PONE3	---	---	---	5-15
Mat muhly	MURI	---	---	---	2-10
Sedge	CAREX	---	---	---	1-5
Other perennial grasses	PPGG	2-15	5-20	2-15	15-20
Globemallow	SPHAE	2-5	---	2-5	---
Other perennial forbs	PPFF	2-10	2-8	2-10	5-10
Big sagebrush	ARTR2	10-15	---	10-15	---
Basin big sagebrush	ARTRT*	---	15-20	---	10-15
Black greasewood	SAVE4	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	2-5	---	---
Other shrubs	SSSS	5-15	1-4	5-15	2-5
Range site number		O25X019N	O24X006N	O25X019N	O25X003N
Potential production (lb/acre):					
Favorable years		800	1,500	800	2,500
Normal years		600	1,100	600	1,900
Unfavorable years		400	600	400	1,200

229.--Enko-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Enko	Puett	1	2
Bluebunch wheatgrass	AGSP	10-40	---	10-40	---
Thurber needlegrass	STTH2	10-40	---	10-40	---
Basin wildrye	ELCI2	5-15	---	5-15	---
Indian ricegrass	ORHY	2-10	10-30	2-10	---
Webber ricegrass	ORWE	2-10	---	2-10	---
Bluegrass	POA++	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	5-10	---	---
Other perennial grasses	PPGG	2-15	10-20	2-15	---
Globemallow	SPHAE	2-5	---	2-5	---
Other perennial forbs	PPFF	2-10	5-15	2-10	---
Big sagebrush	ARTR2	10-15	---	10-15	---
Downy rabbitbrush	CHVIP	---	1-5	---	---
Spiny hopsage	GRSP	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	1-5	---	---
Black sagebrush	ARARN	---	5-15	---	---
Purple sage	SACA9	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	---
Other shrubs	SSSS	5-15	2-4	5-15	---
Range site number		O25X019N	O25X025N	O25X019N	None
Potential production (lb/acre):					
Favorable years		800	200	800	---
Normal years		600	150	600	---
Unfavorable years		400	100	400	---

232.--Bioya-Orovada association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Bioya	Orovada	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	5-20
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	1-4
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O24X006N
Potential production (lb/acre):							
Favorable years		800	800	200	800	800	1,500
Normal years		600	600	150	600	600	1,100
Unfavorable years		400	400	100	400	400	600

236.--Cleavage-Bullump-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cleavage	Bullump	Hapgood	1	2	3
Idaho fescue	FEID	10-30	5-15	2-10	---	20-40	---
Bluegrass	POA++	5-15	---	---	---	2-10	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	5-15	2-5	---	15-40	---
Basin wildrye	ELCI2	---	10-20	---	---	2-5	---
Mountain brome	BRMA4	---	10-20	5-15	---	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	---	---
Letterman needlegrass	STLE4	---	2-5	2-5	60-70	---	---
Spike-fescue	HEKI	---	2-5	2-10	---	---	---
Slender wheatgrass	AGTR	---	---	5-15	2-5	---	---
Columbia needlegrass	STCO3	---	---	---	2-5	---	---
Other perennial grasses	PPGG	2-8	5-15	5-15	2-5	2-10	---
Goldenweed	HAPLO2	2-5	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5	---
Geranium	GERAN	---	---	2-10	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---
Tailcup lupine	LUCA	---	---	---	20-40	---	---
Other perennial forbs	PPFF	5-10	2-5	5-15	---	2-10	---
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	5-15	2-5	---	1-5	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	---
Snowberry	SYMPH	---	2-5	2-10	---	---	---
Big sagebrush	ARTR2	---	---	---	---	5-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Other shrubs	SSSS	1-8	2-5	2-10	---	---	---

Range site number	O25X024N	O25X016N	O25X004N	O25X028N	O25X027N	None
Potential production (lb/acre):						
Favorable years	350	2,000	2,600	1,000	1,300	---
Normal years	250	1,400	1,800	800	900	---
Unfavorable years	150	1,000	1,400	500	600	---

237.--Cleavage-Tweener-Pernog association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Tweener	Pernog	1	2	3	4
Idaho fescue	FEID	10-30	15-30	---	15-40	2-10	15-30	---
Bluegrass	POA++	5-15	---	---	---	---	---	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	15-25	10-20	15-30	2-5	15-25	---
Basin wildrye	ELCI2	---	2-5	---	2-10	---	2-5	5-15
Nevada bluegrass	PONE3	---	2-5	---	2-5	2-5	2-5	40-60
Thurber needlegrass	STTH2	---	2-5	10-15	1-10	---	2-5	---
Pine bluegrass	POSC	---	---	5-10	---	---	---	---
Indian ricegrass	ORHY	---	---	2-5	---	---	---	---
Mountain brome	BRMA4	---	---	---	---	5-15	---	---
Slender wheatgrass	AGTR	---	---	---	---	5-15	---	---
Spike-fescue	HEKI	---	---	---	---	2-10	---	---
Letterman needlegrass	STLE4	---	---	---	---	2-5	---	---
Alpine timothy	PHAL2	---	---	---	---	---	---	20-40
Sedge	CAREX	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-8	5-15	1-5	5-10	5-15	5-15	2-8
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	---	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	5-10	---	---	---
Geranium	GERAN	---	---	---	---	2-10	---	---
Groundsel	SENEC	---	---	---	---	2-10	---	---
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	10-20	10-20	5-15	5-15	10-20	2-10
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	20-40	---	5-15	2-5	20-40	---
Mountain big sagebrush	ARTRV	---	2-10	1-5	10-15	---	2-10	---
Snowberry	SYMPH	---	2-5	1-5	---	2-10	2-5	---
Serviceberry	AMELA	---	2-5	---	---	---	2-5	---
Curlleaf mountainmahogany	CELE3	---	---	5-10	---	---	---	---
Other shrubs	SSSS	1-8	2-8	5-10	5-15	2-10	2-8	2-5

Range site number	O25X024N	O25X007N	O28B042N	O25X012N	O25X004N	O25X007N	O25X006N
Potential production (lb/acre):							
Favorable years	350	1,600	900	1,200	2,600	1,600	1,600
Normal years	250	1,300	600	900	1,800	1,300	1,300
Unfavorable years	150	800	400	600	1,400	800	800

238.--Cleavage-Tweener-Graley association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Tweener	Graley	1	2	3	4
Idaho fescue	FEID	10-30	15-30	15-40	2-5	5-15	2-10	---
Bluegrass	POA++	5-15	---	---	---	---	---	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	15-25	15-30	30-50	5-15	2-5	---
Basin wildrye	ELCI2	---	2-5	2-10	5-10	10-20	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	2-5	2-5	---
Thurber needlegrass	STTH2	---	2-5	1-10	2-10	---	---	---
Mountain brome	BRMA4	---	---	---	---	10-20	5-15	---
Letterman needlegrass	STLE4	---	---	---	---	2-5	2-5	---
Spike-fescue	HEKI	---	---	---	---	2-5	2-10	---
Slender wheatgrass	AGTR	---	---	---	---	---	5-15	---
Other perennial grasses	PPGG	2-8	5-15	5-10	5-10	5-15	5-15	---
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	1-5	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	2-5	2-5	---	---
Geranium	GERAN	---	---	---	---	---	2-10	---
Groundsel	SENEC	---	---	---	---	---	2-10	---
Other perennial forbs	PPFF	5-10	10-20	5-15	2-5	2-5	5-15	---
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	20-40	5-15	2-15	5-15	2-5	---
Mountain big sagebrush	ARTRV	---	2-10	10-15	5-10	5-10	---	---
Snowberry	SYMPH	---	2-5	---	---	2-5	2-10	---
Serviceberry	AMELA	---	2-5	---	---	---	---	---
Other shrubs	SSSS	1-8	2-8	5-15	2-10	2-5	2-10	---

Range site number	O25X024N	O25X007N	O25X012N	O25X009N	O25X016N	O25X004N	None
Potential production (lb/acre):							
Favorable years	350	1,600	1,200	1,300	2,000	2,600	---
Normal years	250	1,300	900	900	1,400	1,800	---
Unfavorable years	150	800	600	700	1,000	1,400	---

239.--Cleavage-Vitale association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Cleavage, very gravelly	Vitale	1	2	3	4
Idaho fescue	FEID	10-30	30-50	20-40	---	2-5	---	5-15
Bluegrass	POA++	5-15	2-10	2-10	2-5	---	---	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	15-30	15-40	20-30	30-50	---	5-10
Basin wildrye	ELCI2	---	---	2-5	---	5-10	---	---
Thurber needlegrass	STTH2	---	---	---	5-10	2-10	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---	---
Columbia needlegrass	STCO3	---	---	---	---	---	---	5-10
Western needlegrass	STOC2	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-8	5-15	2-10	2-5	5-10	5-15	5-10
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	2-5	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	2-5	---	---
Other perennial forbs	PPFF	5-10	5-20	2-10	2-10	2-5	5-15	10-15
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Low sagebrush	ARAR8	---	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-5	---	2-15	---	---
Big sagebrush	ARTR2	---	---	5-15	---	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---	---
Black sagebrush	ARARN	---	---	---	35-45	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	---	5-10	---	5-10
Snowbrush ceanothus	CEVE	---	---	---	---	---	60-75	---
Snowberry	SYMPH	---	---	---	---	---	---	1-5
Curlleaf mountainmahogany	CELE3	---	---	---	---	---	---	5-10
Other shrubs	SSSS	1-8	5-15	---	10-20	2-10	5-15	5-10

Range site number	O25X024N	O25X017N	O25X027N	O25X055N	O25X009N	O25X052N	O28B043N
Potential production (lb/acre):							
Favorable years	350	1,000	1,300	450	1,300	1,200	1,000
Normal years	250	700	900	375	900	900	800
Unfavorable years	150	400	600	300	700	700	600

240.--Cleavage-Cleavage, strongly sloping association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Cleavage	Cleavage, strongly sloping	1	2
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	---
Idaho fescue	FEID	30-50	30-50	30-50	---
Bluegrass	POA++	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	---
Other perennial grasses	PPGG	5-15	5-15	5-15	---
Balsamroot	BALSA	2-5	2-5	2-5	---
Other perennial forbs	PPFF	5-20	5-20	5-20	---
Low sagebrush	ARAR8	10-25	10-25	10-25	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	---
Other shrubs	SSSS	5-15	5-15	5-15	---
Range site number		O25X017N	O25X017N	O25X017N	None
Potential production (lb/acre):					
Favorable years		1,000	1,000	1,000	---
Normal years		700	700	700	---
Unfavorable years		400	400	400	---

241.--Cleavage-Cleavage, very cobbly-Loncan association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cleavage	Cleavage, very cobbly	Loncan	1	2	3
Bluebunch wheatgrass	AGSP	15-30	2-5	15-30	---	30-50	---
Idaho fescue	FEID	30-50	10-30	15-40	---	2-5	X
Bluegrass	POA++	2-10	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	5-10	---
Nevada bluegrass	PONE3	---	---	2-5	---	2-5	---
Thurber needlegrass	STTH2	---	---	1-10	---	2-10	---
Mountain brome	BRMA4	---	---	---	---	---	X
Slender wheatgrass	AGTR	---	---	---	---	---	X
Other perennial grasses	PPGG	5-15	2-8	5-10	---	5-10	X
Balsamroot	BALSA	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	2-5	---
Horsemint	MONAR	---	---	---	---	---	X
Geranium	GERAN	---	---	---	---	---	X
Lupine	LUPIN	---	---	---	---	---	X
Other perennial forbs	PPFF	5-20	5-10	5-15	---	2-5	X
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	5-15	---	2-15	---
Sagebrush	ARTEM	---	15-25	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	5-10	---
Snowberry	SYMPH	---	---	---	---	---	X
Other shrubs	SSSS	5-15	1-8	5-15	---	2-10	X
Quaking aspen	POTR5	---	---	---	---	---	X
Range site number		O25X017N	O25X024N	O25X012N	None	O25X009N	O25X065N
Potential production (lb/acre):							
Favorable years		1,000	350	1,200	---	1,300	800
Normal years		700	250	900	---	900	600
Unfavorable years		400	150	600	---	700	400

242.--Cleavage-Loncan-Lyra association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cleavage	Loncan	Lyra	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	20-30	---	20-30	---
Idaho fescue	FEID	30-50	15-40	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	---	50-60	---	---
Nevada bluegrass	PONE3	---	2-5	2-10	5-15	2-10	---
Thurber needlegrass	STTH2	---	1-10	15-25	---	15-25	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	5-15	5-10	10-15	15-20	10-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	2-5	---
Other perennial forbs	PPFF	5-20	5-15	2-5	5-10	2-5	---
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	1-10	---	1-10	---
Mountain big sagebrush	ARTRV	---	10-15	---	---	---	---
Big sagebrush	ARTR2	---	---	10-15	---	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	5-15	5-10	2-5	5-10	---
Range site number		O25X017N	O25X012N	O25X014N	O25X003N	O25X014N	None
Potential production (lb/acre):							
Favorable years		1,000	1,200	1,000	2,500	1,000	---
Normal years		700	900	800	1,900	800	---
Unfavorable years		400	600	600	1,200	600	---

243.--Cleavage-Sumine-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Sumine	McIvey	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	30-50	15-30	2-5	---	2-5	---
Idaho fescue	FEID	30-50	2-5	15-40	2-10	---	10-30	---
Bluegrass	POA++	2-10	---	---	---	---	5-15	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	2-5	---
Basin wildrye	ELCI2	---	5-10	2-10	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	---	---	5-10
Thurber needlegrass	STTH2	---	2-10	1-10	---	---	---	---
Mountain brome	BRMA4	---	---	---	5-15	---	---	---
Slender wheatgrass	AGTR	---	---	---	5-15	---	---	---
Spike-fescue	HEKI	---	---	---	2-10	---	---	---
Letterman needlegrass	STLE4	---	---	---	2-5	---	---	---
Webber ricegrass	ORWE	---	---	---	---	---	5-10	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-15	5-10	5-10	5-15	---	2-8	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	---	2-5	---
Geranium	GERAN	---	---	---	2-10	---	---	---
Groundsel	SENEC	---	---	---	2-10	---	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	2-5	5-15	5-15	---	5-10	10-20
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	2-15	5-15	2-5	---	---	---
Mountain big sagebrush	ARTRV	---	5-10	10-15	---	---	---	---
Snowberry	SYMPH	---	---	---	2-10	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	---	15-25	---
Other shrubs	SSSS	5-15	2-10	5-15	2-10	---	1-8	2-5

Range site number	O25X017N	O25X009N	O25X012N	O25X004N	None	O25X024N	O25X005N
Potential production (lb/acre):							
Favorable years	1,000	1,300	1,200	2,600	---	350	2,000
Normal years	700	900	900	1,800	---	250	1,700
Unfavorable years	400	700	600	1,400	---	150	1,000

244.--Cleavage, moderately steep-Cleavage-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cleavage, moderately steep	Cleavage	Eboda	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-40	---	---	2-5
Idaho fescue	FEID	30-50	30-50	20-40	---	---	10-30
Bluegrass	POA++	2-10	2-10	2-10	---	---	5-15
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	2-5
Basin wildrye	ELCI2	---	---	2-5	---	50-60	---
Nevada bluegrass	PONE3	---	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Webber ricegrass	ORWE	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-15	5-15	2-10	---	15-20	2-8
Balsamroot	BALSA	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---	2-5
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Phlox	PHLOX	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	5-20	2-10	---	5-10	5-10
Low sagebrush	ARAR8	10-25	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	---	---	---
Big sagebrush	ARTR2	---	---	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Sagebrush (low or black)	ARTEM	---	---	---	---	---	15-25
Other shrubs	SSSS	5-15	5-15	---	---	2-5	1-8
Range site number		O25X017N	O25X017N	O25X027N	None	O25X003N	O25X024N
Potential production (lb/acre):							
Favorable years		1,000	1,000	1,300	---	2,500	350
Normal years		700	700	900	---	1,900	250
Unfavorable years		400	400	600	---	1,200	150

245.--Cleavage-Glean-Inpendence association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Glean	Inpendence	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	5-10	---	15-30	15-30	---	---
Idaho fescue	FEID	30-50	30-50	---	30-50	30-50	---	X
Bluegrass	POA++	2-10	---	2-10	2-10	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	2-5	---	---
Mountain brome	BRMA4	---	1-10	5-10	---	---	---	X
Columbia needlegrass	STCO3	---	1-10	2-10	---	---	---	---
Slender wheatgrass	AGTR	---	---	5-10	---	---	---	X
Sedge	CAREX	---	---	2-10	---	---	---	---
Western needlegrass	STOC2	---	---	2-10	---	---	---	---
Other perennial grasses	PPGG	5-15	5-15	5-15	5-15	5-15	5-15	X
Balsamroot	BALSA	2-5	---	---	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	5-10	---	---	---	---	---
Horsemint	MONAR	---	---	---	---	---	---	X
Geranium	GERAN	---	---	---	---	---	---	X
Lupine	LUPIN	---	---	---	---	---	---	X
Other perennial forbs	PPFF	5-20	5-10	2-10	5-20	5-20	5-15	X
Low sagebrush	ARAR8	10-25	---	---	10-25	10-25	---	---
Antelope bitterbrush	PUTR2	1-10	5-10	---	1-10	1-10	---	---
Mountain big sagebrush	ARTRV	---	10-20	---	---	---	---	---
Snowberry	SYMPH	---	2-5	2-5	---	---	---	X
Common chokecherry	PRVI	---	---	2-5	---	---	---	---
Snowbrush ceanothus	CEVE	---	---	---	---	---	60-75	---
Other shrubs	SSSS	5-15	2-5	2-10	5-15	5-15	5-15	X
Quaking aspen	POTR5	---	---	5-10	---	---	---	X
Range site number		O25X017N	O25X056N	O25X002N	O25X017N	O25X017N	O25X052N	O25X065N
Potential production (lb/acre):								
Favorable years		1,000	1,800	800	1,000	1,000	1,200	800
Normal years		700	1,200	500	700	700	900	600
Unfavorable years		400	800	300	400	400	700	400

247.--Cleavage-Sumine-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Sumine	Hapgood	1	2	3	4
Idaho fescue	FEID	10-30	2-5	2-10	---	---	30-60	---
Bluegrass	POA++	5-15	---	---	2-10	---	---	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	30-50	2-5	---	---	5-10	---
Basin wildrye	ELCI2	---	5-10	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	---	2-5	---
Thurber needlegrass	STTH2	---	2-10	---	---	---	---	---
Mountain brome	BRMA4	---	---	5-15	5-10	---	2-5	---
Slender wheatgrass	AGTR	---	---	5-15	5-10	---	---	2-5
Spike-fescue	HEKI	---	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	2-5	---	---	---	60-70
Sedge	CAREX	---	---	---	2-10	---	---	---
Western needlegrass	STOC2	---	---	---	2-10	---	---	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	2-8	5-10	5-15	5-15	---	2-10	2-5
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	2-5	---
Geranium	GERAN	---	---	2-10	---	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---	---
Hawksbeard	CREPI	---	---	---	---	---	2-5	---
Tailcup lupine	LUCA	---	---	---	---	---	---	20-40
Other perennial forbs	PPFF	5-10	2-5	5-15	2-10	---	2-5	---
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	2-15	2-5	---	---	2-5	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	2-5	---
Snowberry	SYMPH	---	---	2-10	2-5	---	2-5	---
Common chokecherry	PRVI	---	---	---	2-5	---	---	---
Other shrubs	SSSS	1-8	2-10	2-10	2-10	---	2-5	---
Quaking aspen	POTR5	---	---	---	5-10	---	---	---

Range site number	O25X024N	O25X009N	O25X004N	O25X002N	None	O25X010N	O25X028N
Potential production (lb/acre):							
Favorable years	350	1,300	2,600	800	---	1,400	1,000
Normal years	250	900	1,800	500	---	1,000	800
Unfavorable years	150	700	1,400	300	---	700	500

248.--Cleavage-Tweener-Lerrow association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cleavage	Tweener	Lerrow	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-25	15-40	15-40	30-50	---	---
Idaho fescue	FEID	30-50	15-30	20-40	20-40	2-5	---	---
Bluegrass	POA++	2-10	---	2-10	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-5	2-5	2-5	5-10	5-15	---
Nevada bluegrass	PONE3	---	2-5	---	---	2-5	40-60	5-10
Thurber needlegrass	STTH2	---	2-5	---	---	2-10	---	---
Alpine timothy	PHAL2	---	---	---	---	---	20-40	5-10
Sedge	CAREX	---	---	---	---	---	5-15	5-10
Mat muhly	MURI	---	---	---	---	---	5-15	---
Meadow barley	HOBR2	---	---	---	---	---	2-5	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Other perennial grasses	PPGG	5-15	5-15	2-10	2-10	5-10	2-8	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	2-5	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	2-5
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	10-20	2-10	2-10	2-5	2-10	10-20
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	20-40	1-5	1-5	2-15	---	---
Mountain big sagebrush	ARTRV	---	2-10	---	---	5-10	---	---
Snowberry	SYMPH	---	2-5	---	---	---	---	---
Serviceberry	AMELA	---	2-5	---	---	---	---	---
Big sagebrush	ARTR2	---	---	5-15	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	2-5	---	---	---
Other shrubs	SSSS	5-15	2-8	---	---	2-10	2-5	2-5
Range site number		O25X017N	O25X007N	O25X027N	O25X027N	O25X009N	O25X006N	O25X005N
Potential production (lb/acre):								
Favorable years		1,000	1,600	1,300	1,300	1,300	1,600	2,000
Normal years		700	1,300	900	900	900	1,300	1,700
Unfavorable years		400	800	600	600	700	800	1,000

251.--Ocala-Kelk-Devilsgait association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Ocala	Kelk	Devilsgait	1	2	3
Basin wildrye	ELCI2	40-60	50-60	---	---	50-60	---
Alkali sacaton	SPAI	15-30	---	---	---	---	---
Inland saltgrass	DIST	5-10	---	5-10	---	---	5-10
Western wheatgrass	AGSM	---	5-15	---	---	---	---
Wildrye	ELYMU	---	---	30-60	---	---	30-60
Nevada bluegrass	PONE3	---	---	5-10	5-10	5-15	5-10
Mat muhly	MURI	---	---	2-10	---	2-10	2-10
Tufted hairgrass	DECA5	---	---	---	30-60	---	---
Alpine timothy	PHAL2	---	---	---	5-10	---	---
Sedge	CAREX	---	---	---	5-10	1-5	---
Other perennial grasses	PPGG	2-8	5-20	5-15	2-10	15-20	5-15
Sierra clover	TRWO	---	---	2-5	2-5	---	2-5
Cinquefoil	POTEN	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-8	5-10	10-20	5-10	5-10
Black greasewood	SAVE4	5-15	2-10	---	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---	---	---
Basin big sagebrush	ARTRT*	---	15-20	2-5	---	10-15	2-5
Rubber rabbitbrush	CHNA2	---	2-5	---	---	---	---
Willow	SALIX	---	---	5-10	---	---	5-10
Silver sagebrush	ARCA13	---	---	2-5	---	---	2-5
Other shrubs	SSSS	2-5	1-4	2-8	2-5	2-5	2-8
Range site number		O24X007N	O24X006N	O25X001N	O25X005N	O25X003N	O25X001N
Potential production (lb/acre):							
Favorable years		1,900	1,500	3,000	2,000	2,500	3,000
Normal years		1,400	1,100	2,500	1,700	1,900	2,500
Unfavorable years		800	600	1,800	1,000	1,200	1,800

256.--Ocala, occasionally flooded-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Ocala, occasionally flooded	Ocala	1	2	3
Basin wildrye	ELCI2	15-20	40-60	50-60	---	50-60
Bottlebrush squirreltail	SIHY	2-10	---	---	---	---
Inland saltgrass	DIST	2-10	5-10	---	75-95	---
Alkali sacaton	SPAI	---	15-30	---	---	---
Nevada bluegrass	PONE3	---	---	5-15	---	5-15
Mat muhly	MURI	---	---	2-10	---	2-10
Sedge	CAREX	---	---	1-5	---	1-5
Other perennial grasses	PPGG	2-4	2-8	15-20	2-5	15-20
Perennial forbs	PPFF	2-8	2-8	5-10	1-4	5-10
Black greasewood	SAVE4	40-60	5-15	---	---	---
Rabbitbrush	CHRYS9	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	10-15	---	10-15
Other shrubs	SSSS	5-10	2-5	2-5	2-8	2-5
Range site number		O24X008N	O24X007N	O25X003N	O26X002N	O25X003N
Potential production (lb/acre):						
Favorable years		800	1,900	2,500	2,000	2,500
Normal years		600	1,400	1,900	1,700	1,900
Unfavorable years		400	800	1,200	1,200	1,200

258.--Ocala-Devilsgait-Devilsgait, occasionally flooded association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Ocala	Devilsgait	Devilsgait, occasionally flooded	1	2	3	4
Basin wildrye	ELCI2	40-60	50-60	50-60	50-60	15-20	---	40-60
Alkali sacaton	SPAI	15-30	---	---	---	---	---	15-30
Inland saltgrass	DIST	5-10	---	---	---	2-10	5-10	5-10
Nevada bluegrass	PONE3	---	5-15	5-15	---	---	5-10	---
Mat muhly	MURI	---	2-10	2-10	---	---	2-10	---
Sedge	CAREX	---	1-5	1-5	---	---	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-10	---	---
Wildrye	ELYMU	---	---	---	---	---	30-60	---
Other perennial grasses	PPGG	2-8	15-20	15-20	5-20	2-4	5-15	2-8
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-8	5-10	5-10	2-8	2-8	5-10	2-8
Black greasewood	SAVE4	5-15	---	---	2-10	40-60	---	5-15
Rabbitbrush	CHRYS9	2-5	---	---	---	---	---	2-5
Basin big sagebrush	ARTRT*	---	10-15	10-15	15-20	---	2-5	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---	---	---
Willow	SALIX	---	---	---	---	---	5-10	---
Silver sagebrush	ARCA13	---	---	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-5	2-5	1-4	5-10	2-8	2-5
Range site number		O24X007N	O25X003N	O25X003N	O24X006N	O24X008N	O25X001N	O24X007N
Potential production (lb/acre):								
Favorable years		1,900	2,500	2,500	1,500	800	3,000	1,900
Normal years		1,400	1,900	1,900	1,100	600	2,500	1,400
Unfavorable years		800	1,200	1,200	600	400	1,800	800

259.--Ocala-Sonoma association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Ocala	Sonoma	1	2
Basin wildrye	ELCI2	40-60	50-60	15-20	50-60
Alkali sacaton	SPAI	15-30	---	---	---
Inland saltgrass	DIST	5-10	---	2-10	---
Nevada bluegrass	PONE3	---	5-15	---	5-15
Mat muhly	MURI	---	2-10	---	2-10
Sedge	CAREX	---	1-5	---	1-5
Bottlebrush squirreltail	SIHY	---	---	2-10	---
Other perennial grasses	PPGG	2-8	15-20	2-4	15-20
Perennial forbs	PPFF	2-8	5-10	2-8	5-10
Black greasewood	SAVE4	5-15	---	40-60	---
Rabbitbrush	CHRYS9	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	10-15	---	10-15
Other shrubs	SSSS	2-5	2-5	5-10	2-5
Range site number		O24X007N	O25X003N	O24X008N	O25X003N
Potential production (lb/acre):					
Favorable years		1,900	2,500	800	2,500
Normal years		1,400	1,900	600	1,900
Unfavorable years		800	1,200	400	1,200

260.--Ocala-Halleck association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Ocala	Halleck	1	2
Tufted hairgrass	DECA5	---	30-60	---	---
Nevada bluegrass	PONE3	---	5-10	---	5-15
Alpine timothy	PHAL2	---	5-10	---	---
Sedge	CAREX	---	5-10	---	1-5
Basin wildrye	ELCI2	40-60	---	2-5	50-60
Alkali sacaton	SPAI	15-30	---	15-40	---
Inland saltgrass	DIST	5-10	---	5-10	---
Alkali muhly	MUAS	---	---	10-20	---
Alkali bluegrass	POJU	---	---	5-15	---
Alkali cordgrass	SPGR	---	---	5-10	---
Arrowgrass	TRIGL	---	---	1-3	---
Mat muhly	MURI	---	---	---	2-10
Other perennial grasses	PPGG	2-8	2-10	5-15	15-20
Sierra clover	TRWO	---	2-5	---	---
Cinquefoil	POTEN	---	2-5	---	---
Other perennial forbs	PPFF	2-8	10-20	2-5	5-10
Black greasewood	SAVE4	5-15	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15
Other shrubs	SSSS	2-5	2-5	1-5	2-5
Range site number		O24X007N	O25X005N	O24X009N	O25X003N
Potential production (lb/acre):					
Favorable years		1,900	2,000	1,500	2,500
Normal years		1,400	1,700	1,000	1,900
Unfavorable years		800	1,000	700	1,200

261.--Linkup-Roca-Vanwyper association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Linkup	Roca	Vanwyper	1	2	3
Bluebunch wheatgrass	AGSP	15-40	20-30	10-40	---	15-40	---
Thurber needlegrass	STTH2	15-40	15-25	10-40	---	15-40	---
Webber ricegrass	ORWE	5-15	---	2-10	---	5-15	---
Bluegrass	POA++	5-10	---	2-10	---	5-10	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	2-10	---	5-15	---	---
Basin wildrye	ELCI2	---	---	5-15	50-60	---	---
Indian ricegrass	ORHY	---	---	2-10	---	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	1-10	10-15	2-15	15-20	1-10	---
Balsamroot	BALSA	2-5	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---	---
Other perennial forbs	PPFF	5-10	2-5	2-10	5-10	5-10	---
Low sagebrush	ARAR8	15-25	---	---	---	15-25	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	5-10	5-15	2-5	5-15	---
Range site number		O25X018N	O25X014N	O25X019N	O25X003N	O25X018N	None
Potential production (lb/acre):							
Favorable years		800	1,000	800	2,500	800	---
Normal years		600	800	600	1,900	600	---
Unfavorable years		400	600	400	1,200	400	---

262.--Linkup-Roca association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Linkup	Roca	1	2	3
Bluebunch wheatgrass	AGSP	15-40	20-30	10-40	15-30	---
Thurber needlegrass	STTH2	15-40	15-25	10-40	1-10	---
Webber ricegrass	ORWE	5-15	---	2-10	---	---
Bluegrass	POA++	5-10	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	---	2-5	---
Basin wildrye	ELCI2	---	---	5-15	2-10	---
Indian ricegrass	ORHY	---	---	2-10	---	---
Idaho fescue	FEID	---	---	---	15-40	---
Other perennial grasses	PPGG	1-10	10-15	2-15	5-10	---
Balsamroot	BALSA	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	1-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	5-10	---
Globemallow	SPHAE	---	---	2-5	---	---
Other perennial forbs	PPFF	5-10	2-5	2-10	5-15	---
Low sagebrush	ARAR8	15-25	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---
Antelope bitterbrush	PUTR2	---	1-10	---	5-15	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-10	5-15	5-15	---

Range site number	O25X018N	O25X014N	O25X019N	O25X012N	None
Potential production (lb/acre):					
Favorable years	800	1,000	800	1,200	---
Normal years	600	800	600	900	---
Unfavorable years	400	600	400	600	---

271.--Pernty-Shivlum association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Pernty	Shivlum	1	2	3	4
Idaho fescue	FEID	15-40	15-40	15-40	---	2-5	---
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	20-30	30-50	---
Basin wildrye	ELCI2	2-10	2-10	2-10	---	5-10	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	2-10	2-5	---
Thurber needlegrass	STTH2	1-10	1-10	1-10	15-25	2-10	---
Other perennial grasses	PPGG	5-10	5-10	5-10	10-15	5-10	---
Arrowleaf balsamroot	BASA3	5-10	5-10	5-10	2-5	2-5	---
Tapertip hawksbeard	CRAC2	1-5	1-5	1-5	2-5	2-5	---
Other perennial forbs	PPFF	5-15	5-15	5-15	2-5	2-5	---
Mountain big sagebrush	ARTRV	10-15	10-15	10-15	---	5-10	---
Antelope bitterbrush	PUTR2	5-15	5-15	5-15	1-10	2-15	---
Big sagebrush	ARTR2	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-10	---
Range site number		025X012N	025X012N	025X012N	025X014N	025X009N	None
Potential production (lb/acre):							
Favorable years		1,200	1,200	1,200	1,000	1,300	---
Normal years		900	900	900	800	900	---
Unfavorable years		600	600	600	600	700	---

272.--Pernty-Sumine-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Pernty	Sumine	Cleavage	1	2	3	4
Idaho fescue	FEID	15-40	2-5	10-30	---	---	30-50	30-50
Bluebunch wheatgrass	AGSP	15-30	30-50	2-5	20-30	---	15-30	15-30
Basin wildrye	ELCI2	2-10	5-10	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	2-5	---	2-10	---	---	---
Thurber needlegrass	STTH2	1-10	2-10	---	15-25	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	2-10	2-10
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	2-5	2-5
Other perennial grasses	PPGG	5-10	5-10	2-8	10-15	---	5-15	5-15
Arrowleaf balsamroot	BASA3	5-10	2-5	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	1-5	2-5	2-5	2-5	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	2-5
Other perennial forbs	PPFF	5-15	2-5	5-10	2-5	---	5-20	5-20
Mountain big sagebrush	ARTRV	10-15	5-10	---	---	---	---	---
Antelope bitterbrush	PUTR2	5-15	2-15	---	1-10	---	1-10	1-10
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Big sagebrush	ARTR2	---	---	---	10-15	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-25	10-25
Other shrubs	SSSS	5-15	2-10	1-8	5-10	---	5-15	5-15
Range site number		O25X012N	O25X009N	O25X024N	O25X014N	None	O25X017N	O25X017N
Potential production (lb/acre):								
Favorable years		1,200	1,300	350	1,000	---	1,000	1,000
Normal years		900	900	250	800	---	700	700
Unfavorable years		600	700	150	600	---	400	400

282.--Bloor-Enko association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Bloor	Enko	1	2
Basin wildrye	ELCI2	40-60	5-15	50-60	50-60
Alkali sacaton	SPAI	15-30	---	---	---
Inland saltgrass	DIST	5-10	---	---	---
Bluebunch wheatgrass	AGSP	---	10-40	---	---
Thurber needlegrass	STTH2	---	10-40	---	---
Indian ricegrass	ORHY	---	2-10	---	---
Webber ricegrass	ORWE	---	2-10	---	---
Bluegrass	POA++	---	2-10	---	---
Western wheatgrass	AGSM	---	---	5-15	5-15
Other perennial grasses	PPGG	2-8	2-15	5-20	5-20
Globemallow	SPHAE	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-10	2-8	2-8
Black greasewood	SAVE4	5-15	---	2-10	2-10
Rabbitbrush	CHRYS9	2-5	---	---	---
Big sagebrush	ARTR2	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	15-20	15-20
Rubber rabbitbrush	CHNA2	---	---	2-5	2-5
Other shrubs	SSSS	2-5	5-15	1-4	1-4
Range site number		O24X007N	O25X019N	O24X006N	O24X006N
Potential production (lb/acre):					
Favorable years		1,900	800	1,500	1,500
Normal years		1,400	600	1,100	1,100
Unfavorable years		800	400	600	600

283.--Bloor-Connel-Kelk association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bloor	Connel	Kelk	1	2	3	4
Basin wildrye	ELCI2	50-60	5-15	50-60	50-60	5-15	40-60	50-60
Western wheatgrass	AGSM	5-15	---	5-15	5-15	---	---	---
Bluebunch wheatgrass	AGSP	---	10-40	---	---	10-40	---	---
Thurber needlegrass	STTH2	---	10-40	---	---	10-40	---	---
Indian ricegrass	ORHY	---	2-10	---	---	2-10	---	---
Webber ricegrass	ORWE	---	2-10	---	---	2-10	---	---
Bluegrass	POA++	---	2-10	---	---	2-10	---	---
Alkali sacaton	SPAI	---	---	---	---	---	15-30	---
Inland saltgrass	DIST	---	---	---	---	---	5-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-20	2-15	5-20	5-20	2-15	2-8	15-20
Globemallow	SPHAE	---	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	2-8	2-10	2-8	2-8	2-10	2-8	5-10
Basin big sagebrush	ARTRT*	15-20	---	15-20	15-20	---	---	10-15
Black greasewood	SAVE4	2-10	---	2-10	2-10	---	5-15	---
Rubber rabbitbrush	CHNA2	2-5	---	2-5	2-5	---	---	---
Big sagebrush	ARTR2	---	10-15	---	---	10-15	---	---
Rabbitbrush	CHRYS9	---	---	---	---	---	2-5	---
Other shrubs	SSSS	1-4	5-15	1-4	1-4	5-15	2-5	2-5
Range site number		O24X006N	O25X019N	O24X006N	O24X006N	O25X019N	O24X007N	O25X003N
Potential production (lb/acre):								
Favorable years		1,500	800	1,500	1,500	800	1,900	2,500
Normal years		1,100	600	1,100	1,100	600	1,400	1,900
Unfavorable years		600	400	600	600	400	800	1,200

291.--Tweba-Moranch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Tweba	Moranch	1	2
Basin wildrye	ELCI2	50-60	15-20	50-60	50-60
Nevada bluegrass	PONE3	5-15	---	---	5-15
Mat muhly	MURI	2-10	---	---	2-10
Sedge	CAREX	1-5	---	---	1-5
Bottlebrush squirreltail	SIHY	---	2-10	---	---
Inland saltgrass	DIST	---	2-10	---	---
Western wheatgrass	AGSM	---	---	5-15	---
Other perennial grasses	PPGG	15-20	2-4	5-20	15-20
Perennial forbs	PPFF	5-10	2-8	2-8	5-10
Basin big sagebrush	ARTRT*	10-15	---	15-20	10-15
Black greasewood	SAVE4	---	40-60	2-10	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---
Other shrubs	SSSS	2-5	5-10	1-4	2-5
Range site number		O25X003N	O24X008N	O24X006N	O25X003N
Potential production (lb/acre):					
Favorable years		2,500	800	1,500	2,500
Normal years		1,900	600	1,100	1,900
Unfavorable years		1,200	400	600	1,200

294.--Sonoma Variant-Halleck association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Sonoma Variant	Halleck	1	2	3	4
Basin wildrye	ELCI2	40-60	---	40-60	40-60	40-60	50-60
Alkali sacaton	SPAI	15-30	---	15-30	15-30	15-30	---
Inland saltgrass	DIST	5-10	---	5-10	5-10	5-10	---
Tufted hairgrass	DECA5	---	30-60	---	---	---	---
Nevada bluegrass	PONE3	---	5-10	---	---	---	5-15
Alpine timothy	PHAL2	---	5-10	---	---	---	---
Sedge	CAREX	---	5-10	---	---	---	1-5
Mat muhly	MURI	---	---	---	---	---	2-10
Other perennial grasses	PPGG	2-8	2-10	2-8	2-8	2-8	15-20
Sierra clover	TRWO	---	2-5	---	---	---	---
Cinquefoil	POTEN	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-8	10-20	2-8	2-8	2-8	5-10
Black greasewood	SAVE4	5-15	---	5-15	5-15	5-15	---
Rabbitbrush	CHRYS9	2-5	---	2-5	2-5	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5	2-5
Range site number		O24X007N	O25X005N	O24X007N	O24X007N	O24X007N	O25X003N
Potential production (lb/acre):							
Favorable years		1,900	2,000	1,900	1,900	1,900	2,500
Normal years		1,400	1,700	1,400	1,400	1,400	1,900
Unfavorable years		800	1,000	800	800	800	1,200

303.--Akler-Cleavage-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Akler	Cleavage	McIvey	1	2	3
Bluebunch wheatgrass	AGSP	15-40	2-5	15-30	---	30-50	---
Thurber needlegrass	STTH2	15-40	---	1-10	---	2-10	---
Webber ricegrass	ORWE	5-15	5-10	---	---	---	---
Bluegrass	POA++	5-10	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Idaho fescue	FEID	---	10-30	15-40	---	2-5	---
Basin wildrye	ELCI2	---	---	2-10	---	5-10	---
Nevada bluegrass	PONE3	---	---	2-5	---	2-5	---
Other perennial grasses	PPGG	1-10	2-8	5-10	---	5-10	---
Balsamroot	BALSA	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-15	---	2-5	---
Low sagebrush	ARAR8	15-25	---	---	---	---	---
Sagebrush	ARTEM	---	15-25	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	5-10	---
Antelope bitterbrush	PUTR2	---	---	5-15	---	2-15	---
Other shrubs	SSSS	5-15	1-8	5-15	---	2-10	---
Range site number		O25X018N	O25X024N	O25X012N	None	O25X009N	None
Potential production (lb/acre):							
Favorable years		800	350	1,200	---	1,300	---
Normal years		600	250	900	---	900	---
Unfavorable years		400	150	600	---	700	---

304.--Akler-Yuko-Welch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Akler	Yuko	Welch	1	2
Bluebunch wheatgrass	AGSP	15-40	10-40	---	---	15-40
Thurber needlegrass	STTH2	15-40	10-40	---	---	15-40
Webber ricegrass	ORWE	5-15	2-10	---	---	5-15
Bluegrass	POA++	5-10	2-10	---	---	5-10
Bottlebrush squirreltail	SIHY	2-5	---	---	5-10	2-5
Basin wildrye	ELCI2	---	5-15	50-60	---	---
Indian ricegrass	ORHY	---	2-10	---	10-30	---
Nevada bluegrass	PONE3	---	---	5-15	---	---
Mat muhly	MURI	---	---	2-10	---	---
Sedge	CAREX	---	---	1-5	---	---
Other perennial grasses	PPGG	1-10	2-15	15-20	10-20	1-10
Balsamroot	BALSA	2-5	---	---	---	2-5
Globemallow	SPHAE	---	2-5	---	---	---
Other perennial forbs	PPFF	5-10	2-10	5-10	5-15	5-10
Low sagebrush	ARAR8	15-25	---	---	---	15-25
Big sagebrush	ARTR2	---	10-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	10-15	---	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	5-15	---
Purple sage	SACA9	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---
Other shrubs	SSSS	5-15	5-15	2-5	2-4	5-15

Range site number	O25X018N	O25X019N	O25X003N	O25X025N	O25X018N
Potential production (lb/acre):					
Favorable years	800	800	2,500	200	800
Normal years	600	600	1,900	150	600
Unfavorable years	400	400	1,200	100	400

305.--Akler-Kleckner-Short Creek association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Akler	Kleckner	Short Creek	1	2	3
Bluebunch wheatgrass	AGSP	15-40	20-30	40-80	---	15-30	5-10
Thurber needlegrass	STTH2	15-40	15-25	5-15	---	---	---
Webber ricegrass	ORWE	5-15	---	---	---	---	---
Bluegrass	POA++	5-10	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	2-10	---	---	---	2-5
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Idaho fescue	FEID	---	---	---	---	30-50	30-60
Mountain brome	BRMA4	---	---	---	---	---	2-5
Cusick bluegrass	POCU3	---	---	---	---	---	2-5
Other perennial grasses	PPGG	1-10	10-15	2-10	---	5-15	2-10
Balsamroot	BALSA	2-5	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	2-5
Hawksbeard	CREPI	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	2-5	2-10	---	5-20	2-5
Low sagebrush	ARAR8	15-25	---	---	---	10-25	---
Big sagebrush	ARTR2	---	10-15	2-10	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-10	---	1-10	2-5
Mountain big sagebrush	ARTRV	---	---	---	---	---	2-5
Snowberry	SYMPH	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	2-8	---	5-15	2-5
Range site number		O25X018N	O25X014N	O25X015N	None	O25X017N	O25X010N
Potential production (lb/acre):							
Favorable years		800	1,000	1,000	---	1,000	1,400
Normal years		600	800	700	---	700	1,000
Unfavorable years		400	600	500	---	400	700

306.--Akler-Quarz-Soughe association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Akler	Quarz	Soughe	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	20-30	10-40	---	40-80	10-40	---
Thurber needlegrass	STTH2	15-40	15-25	10-40	---	5-15	10-40	---
Webber ricegrass	ORWE	5-15	---	2-10	---	---	2-10	---
Bluegrass	POA++	5-10	---	2-10	---	---	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	---	5-15	---	---	---
Basin wildrye	ELCI2	---	---	5-15	50-60	2-5	5-15	---
Indian ricegrass	ORHY	---	---	2-10	---	2-5	2-10	---
Mat muhly	MURI	---	---	---	2-10	---	---	---
Sedge	CAREX	---	---	---	1-5	---	---	---
Other perennial grasses	PPGG	1-10	10-15	2-15	15-20	2-10	2-15	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---	2-5	---
Other perennial forbs	PPFF	5-10	2-5	2-10	5-10	2-10	2-10	---
Low sagebrush	ARAR8	15-25	---	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	2-10	10-15	---
Antelope bitterbrush	PUTR2	---	1-10	---	---	1-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---	---
Other shrubs	SSSS	5-15	5-10	5-15	2-5	2-8	5-15	---

Range site number	O25X018N	O25X014N	O25X019N	O25X003N	O25X015N	O25X019N	None
Potential production (lb/acre):							
Favorable years	800	1,000	800	2,500	1,000	800	---
Normal years	600	800	600	1,900	700	600	---
Unfavorable years	400	600	400	1,200	500	400	---

307.--Akler-Lerrow association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Akler	Lerrow	1	2	3
Bluebunch wheatgrass	AGSP	15-40	15-40	---	---	15-40
Thurber needlegrass	STTH2	15-40	---	---	---	---
Webber ricegrass	ORWE	5-15	---	---	---	---
Bluegrass	POA++	5-10	2-10	---	---	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Idaho fescue	FEID	---	20-40	---	---	20-40
Basin wildrye	ELCI2	---	2-5	5-15	---	2-5
Nevada bluegrass	PONE3	---	---	40-60	5-10	---
Alpine timothy	PHAL2	---	---	20-40	5-10	---
Sedge	CAREX	---	---	5-15	5-10	---
Mat muhly	MURI	---	---	5-15	---	---
Meadow barley	HOBR2	---	---	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	30-60	---
Other perennial grasses	PPGG	1-10	2-10	2-8	2-10	2-10
Balsamroot	BALSA	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5
Tapertip hawksbeard	CRAC2	---	2-5	---	---	2-5
Cinquefoil	POTEN	---	---	2-5	2-5	---
Sierra clover	TRWO	---	---	---	2-5	---
Other perennial forbs	PPFF	5-10	2-10	2-10	10-20	2-10
Low sagebrush	ARAR8	15-25	---	---	---	---
Big sagebrush	ARTR2	---	5-15	---	---	5-15
Rabbitbrush	CHRYS9	---	2-5	---	---	2-5
Antelope bitterbrush	PUTR2	---	1-5	---	---	1-5
Other shrubs	SSSS	5-15	---	2-5	2-5	---
Range site number		O25X018N	O25X027N	O25X006N	O25X005N	O25X027N
Potential production (lb/acre):						
Favorable years		800	1,300	1,600	2,000	1,300
Normal years		600	900	1,300	1,700	900
Unfavorable years		400	600	800	1,000	600

309.--Akler-Vanwyper-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Akler	Vanwyper	Rock outcrop	1	2
Bluebunch wheatgrass	AGSP	15-40	10-40	---	15-40	15-40
Thurber needlegrass	STTH2	15-40	10-40	---	15-40	15-40
Webber ricegrass	ORWE	5-15	2-10	---	5-15	5-15
Bluegrass	POA++	5-10	2-10	---	5-10	5-10
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	2-5
Basin wildrye	ELCI2	---	5-15	---	---	---
Indian ricegrass	ORHY	---	2-10	---	---	---
Other perennial grasses	PPGG	1-10	2-15	---	1-10	1-10
Balsamroot	BALSA	2-5	---	---	2-5	2-5
Globemallow	SPHAE	---	2-5	---	---	---
Other perennial forbs	PPFF	5-10	2-10	---	5-10	5-10
Low sagebrush	ARAR8	15-25	---	---	15-25	15-25
Big sagebrush	ARTR2	---	10-15	---	---	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15
Range site number		O25X018N	O25X019N	None	O25X018N	O25X018N
Potential production (lb/acre):						
Favorable years		800	800	---	800	800
Normal years		600	600	---	600	600
Unfavorable years		400	400	---	400	400

311.--Shayla-Dewar-Vanwyper association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Shayla	Dewar	Vanwyper	1	2	3
Indian ricegrass	ORHY	10-30	2-10	2-10	---	---	---
Bottlebrush squirreltail	SIHY	5-10	---	---	---	---	---
Bluebunch wheatgrass	AGSP	---	10-40	10-40	---	---	---
Thurber needlegrass	STTH2	---	10-40	10-40	---	---	---
Basin wildrye	ELCI2	---	5-15	5-15	50-60	---	---
Webber ricegrass	ORWE	---	2-10	2-10	---	---	---
Bluegrass	POA++	---	2-10	2-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	5-10
Mat muhly	MURI	---	---	---	2-10	---	2-10
Sedge	CAREX	---	---	---	1-5	---	---
Wildrye	ELYMU	---	---	---	---	---	30-60
Inland saltgrass	DIST	---	---	---	---	---	5-10
Other perennial grasses	PPGG	10-20	2-15	2-15	15-20	---	5-15
Globemallow	SPHAE	---	2-5	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-15	2-10	2-10	5-10	---	5-10
Downy rabbitbrush	CHVIP	1-5	---	---	---	---	---
Spiny hopsage	GRSP	1-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	---	---	---	---	---
Black sagebrush	ARARN	5-15	---	---	---	---	---
Purple sage	SACA9	1-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	10-25	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	2-5
Willow	SALIX	---	---	---	---	---	5-10
Silver sagebrush	ARCA13	---	---	---	---	---	2-5
Other shrubs	SSSS	2-4	5-15	5-15	2-5	---	2-8
Range site number		O25X025N	O25X019N	O25X019N	O25X003N	None	O25X001N
Potential production (lb/acre):							
Favorable years		200	800	800	2,500	---	3,000
Normal years		150	600	600	1,900	---	2,500
Unfavorable years		100	400	400	1,200	---	1,800

321.--Grina-Lyra-Loncan Variant association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Grina	Lyra	Loncan Variant	1	2
Bluebunch wheatgrass	AGSP	X	20-30	---	15-30	---
Thurber needlegrass	STTH2	X	15-25	---	1-10	---
Indian ricegrass	ORHY	X	---	---	---	---
Bluegrass	POA++	X	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	5-15	2-5	---
Basin wildrye	ELCI2	---	---	50-60	2-10	---
Mat muhly	MURI	---	---	2-10	---	---
Sedge	CAREX	---	---	1-5	---	---
Idaho fescue	FEID	---	---	---	15-40	---
Other perennial grasses	PPGG	X	10-15	15-20	5-10	---
Tapertip hawksbeard	CRAC2	X	2-5	---	1-5	---
Arrowleaf balsamroot	BASA3	X	2-5	---	5-10	---
Other perennial forbs	PPFF	X	2-5	5-10	5-15	---
Big sagebrush	ARTR2	X	10-15	---	---	---
Antelope bitterbrush	PUTR2	X	1-10	---	5-15	---
Basin big sagebrush	ARTRT*	---	---	10-15	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Other shrubs	SSSS	X	5-10	2-5	5-15	---
Utah juniper	JUOS	X	---	---	---	---
Range site number		O25X059N	O25X014N	O25X003N	O25X012N	None
Potential production (lb/acre):						
Favorable years		500	1,000	2,500	1,200	---
Normal years		350	800	1,900	900	---
Unfavorable years		200	600	1,200	600	---

322.--Grina-Enko, moderately steep-Enko association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Grina	Enko, moderately steep	Enko	1	2
Bluebunch wheatgrass	AGSP	X	10-40	10-40	X	10-40
Thurber needlegrass	STTH2	X	10-40	10-40	X	10-40
Indian ricegrass	ORHY	X	2-10	2-10	X	2-10
Bluegrass	POA++	X	2-10	2-10	X	2-10
Basin wildrye	ELCI2	---	5-15	5-15	---	5-15
Webber ricegrass	ORWE	---	2-10	2-10	---	2-10
Other perennial grasses	PPGG	X	2-15	2-15	X	2-15
Tapertip hawksbeard	CRAC2	X	---	---	X	---
Arrowleaf balsamroot	BASA3	X	---	---	X	---
Globemallow	SPHAE	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	X	2-10	2-10	X	2-10
Big sagebrush	ARTR2	X	10-15	10-15	X	10-15
Antelope bitterbrush	PUTR2	X	---	---	X	---
Other shrubs	SSSS	X	5-15	5-15	X	5-15
Utah juniper	JUOS	X	---	---	X	---
Range site number		O25X059N	O25X019N	O25X019N	O25X059N	O25X019N
Potential production (lb/acre):						
Favorable years		500	800	800	500	800
Normal years		350	600	600	350	600
Unfavorable years		200	400	400	200	400

323.--Grina-Kelk-Orovada association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Grina	Kelk	Orovada	1	2	3	4
Bluebunch wheatgrass	AGSP	X	10-40	10-40	10-40	---	10-40	---
Thurber needlegrass	STTH2	X	10-40	10-40	10-40	---	10-40	---
Indian ricegrass	ORHY	X	2-10	2-10	2-10	10-30	2-10	---
Bluegrass	POA++	X	2-10	2-10	2-10	---	2-10	---
Basin wildrye	ELCI2	---	5-15	5-15	5-15	---	5-15	---
Webber ricegrass	ORWE	---	2-10	2-10	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---	---
Other perennial grasses	PPGG	X	2-15	2-15	2-15	10-20	2-15	---
Tapertip hawksbeard	CRAC2	X	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	X	---	---	---	---	---	---
Globemallow	SPHAE	---	2-5	2-5	2-5	---	2-5	---
Other perennial forbs	PPFF	X	2-10	2-10	2-10	5-15	2-10	---
Big sagebrush	ARTR2	X	10-15	10-15	10-15	---	10-15	---
Antelope bitterbrush	PUTR2	X	---	---	---	1-5	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	---	5-15	---	---
Purple sage	SACA9	---	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25	---	---
Other shrubs	SSSS	---	5-15	5-15	5-15	2-4	5-15	---
Utah juniper	JUOS	X	---	---	---	---	---	---
Range site number		O25X059N	O25X019N	O25X019N	O25X019N	O25X025N	O25X019N	None
Potential production (lb/acre):								
Favorable years		500	800	800	800	200	800	---
Normal years		350	600	600	600	150	600	---
Unfavorable years		200	400	400	400	100	400	---

324.--Grina-Samor association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Grina	Samor	1	2	3	4
Bluebunch wheatgrass	AGSP	X	X	X	10-40	10-40	X
Thurber needlegrass	STTH2	X	X	X	10-40	10-40	X
Indian ricegrass	ORHY	X	X	X	2-10	2-10	X
Bluegrass	POA++	X	X	X	2-10	2-10	X
Basin wildrye	ELCI2	---	---	---	5-15	5-15	---
Webber ricegrass	ORWE	---	---	---	2-10	2-10	---
Other perennial grasses	PPGG	X	X	X	2-15	2-15	X
Tapertip hawksbeard	CRAC2	X	X	X	---	---	X
Arrowleaf balsamroot	BASA3	X	X	X	---	---	X
Globemallow	SPHAE	---	---	---	2-5	2-5	---
Other perennial forbs	PPFF	X	X	X	2-10	2-10	X
Big sagebrush	ARTR2	X	X	X	10-15	10-15	X
Antelope bitterbrush	PUTR2	X	X	X	---	---	X
Other shrubs	SSSS	X	X	X	5-15	5-15	X
Utah juniper	JUOS	X	X	X	---	---	X
Range site number		O25X059N	O25X059N	O25X059N	O25X019N	O25X019N	O25X059N
Potential production (lb/acre):							
Favorable years		500	500	500	800	800	500
Normal years		350	350	350	600	600	350
Unfavorable years		200	200	200	400	400	200

325.--Grina-Karpp-Rad association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Grina	Karpp	Rad	1	2	3
Bluebunch wheatgrass	AGSP	X	X	10-40	X	X	10-40
Thurber needlegrass	STTH2	X	X	10-40	X	X	10-40
Indian ricegrass	ORHY	X	X	2-10	X	X	2-10
Bluegrass	POA++	X	X	2-10	X	X	2-10
Basin wildrye	ELCI2	---	---	5-15	---	---	5-15
Webber ricegrass	ORWE	---	---	2-10	---	---	2-10
Other perennial grasses	PPGG	X	X	2-15	X	X	2-15
Tapertip hawksbeard	CRAC2	X	X	---	X	X	---
Arrowleaf balsamroot	BASA3	X	X	---	X	X	---
Globemallow	SPHAE	---	---	2-5	---	---	2-5
Other perennial forbs	PPFF	X	X	2-10	X	X	2-10
Big sagebrush	ARTR2	X	X	10-15	X	X	10-15
Antelope bitterbrush	PUTR2	X	X	---	X	X	---
Other shrubs	SSSS	X	X	5-15	X	X	5-15
Utah juniper	JUOS	X	X	---	X	X	---
Range site number		O25X059N	O25X059N	O25X019N	O25X059N	O25X059N	O25X019N
Potential production (lb/acre):							
Favorable years		500	500	800	500	500	800
Normal years		350	350	600	350	350	600
Unfavorable years		200	200	400	200	200	400

331.--Bunky-Grina-Enko association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Bunky	Grina	Enko	1	2
Bluebunch wheatgrass	AGSP	10-40	X	10-40	X	10-40
Thurber needlegrass	STTH2	10-40	X	10-40	X	10-40
Basin wildrye	ELCI2	5-15	---	5-15	---	5-15
Indian ricegrass	ORHY	2-10	X	2-10	X	2-10
Webber ricegrass	ORWE	2-10	---	2-10	---	2-10
Bluegrass	POA++	2-10	X	2-10	X	2-10
Other perennial grasses	PPGG	2-15	X	2-15	X	2-15
Globemallow	SPHAE	2-5	---	2-5	---	2-5
Tapertip hawksbeard	CRAC2	---	X	---	X	---
Arrowleaf balsamroot	BASA3	---	X	---	X	---
Other perennial forbs	PPFF	2-10	X	2-10	X	2-10
Big sagebrush	ARTR2	10-15	X	10-15	X	10-15
Antelope bitterbrush	PUTR2	---	X	---	X	---
Other shrubs	SSSS	5-15	X	5-15	X	5-15
Utah juniper	JUOS	---	X	---	X	---
Range site number		O25X019N	O25X059N	O25X019N	O25X059N	O25X019N
Potential production (lb/acre):						
Favorable years		800	500	800	500	800
Normal years		600	350	600	350	600
Unfavorable years		400	200	400	200	400

345.--Perwick-Puett-Rad association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Perwick	Puett	Rad	1	2
Bluebunch wheatgrass	AGSP	X	X	10-40	---	10-40
Thurber needlegrass	STTH2	X	X	10-40	---	10-40
Indian ricegrass	ORHY	X	X	2-10	---	2-10
Bluegrass	POA++	X	X	2-10	---	2-10
Basin wildrye	ELCI2	---	---	5-15	---	5-15
Webber ricegrass	ORWE	---	---	2-10	---	2-10
Other perennial grasses	PPGG	X	X	2-15	---	2-15
Tapertip hawksbeard	CRAC2	X	X	---	---	---
Arrowleaf balsamroot	BASA3	X	X	---	---	---
Globemallow	SPHAE	---	---	2-5	---	2-5
Other perennial forbs	PPFF	X	X	2-10	---	2-10
Big sagebrush	ARTR2	X	X	10-15	---	10-15
Antelope bitterbrush	PUTR2	X	X	---	---	---
Other shrubs	SSSS	X	X	5-15	---	5-15
Utah juniper	JUOS	X	X	---	---	---
Range site number		O25X059N	O25X059N	O25X019N	None	O25X019N
Potential production (lb/acre):						
Favorable years		500	500	800	---	800
Normal years		350	350	600	---	600
Unfavorable years		200	200	400	---	400

367.--Peeko-Hunnton-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Peeko	Hunnton	Puett	1	2	3	4
Indian ricegrass	ORHY	10-15	2-10	10-30	2-10	2-10	2-10	2-10
Thurber needlegrass	STTH2	10-15	10-40	---	10-40	10-40	10-40	10-40
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10	2-10
Bluebunch wheatgrass	AGSP	---	10-40	---	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	---	5-15	---	5-15	5-15	5-15	5-15
Webber ricegrass	ORWE	---	2-10	---	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	5-20	2-15	10-20	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10	2-10
Black sagebrush	ARARN	25-35	---	5-15	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15	5-15
Range site number		O24X030N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		500	800	200	800	800	800	800
Normal years		350	600	150	600	600	600	600
Unfavorable years		250	400	100	400	400	400	400

370.--Chiara-Cherry Spring-Orovada association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Chiara	Cherry Spring	Orovada	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	10-30
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	10-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-15
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-4
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X025N
Potential production (lb/acre):						
Favorable years		800	800	800	800	200
Normal years		600	600	600	600	150
Unfavorable years		400	400	400	400	100

371.--Chiara-Bioya association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Chiara	Bioya	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	X	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	X	10-40	---
Basin wildrye	ELCI2	5-15	5-15	---	5-15	---
Indian ricegrass	ORHY	2-10	2-10	X	2-10	10-30
Webber ricegrass	ORWE	2-10	2-10	---	2-10	---
Bluegrass	POA++	2-10	2-10	X	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	X	2-15	10-20
Globemallow	SPHAE	2-5	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	X	---	---
Arrowleaf balsamroot	BASA3	---	---	X	---	---
Other perennial forbs	PPFF	2-10	2-10	X	2-10	5-15
Big sagebrush	ARTR2	10-15	10-15	X	10-15	---
Antelope bitterbrush	PUTR2	---	---	X	---	1-5
Downy rabbitbrush	CHVIP	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	X	5-15	2-4
Utah juniper	JUOS	---	---	X	---	---
Range site number		O25X019N	O25X019N	O25X059N	O25X019N	O25X025N
Potential production (lb/acre):						
Favorable years		800	800	500	800	200
Normal years		600	600	350	600	150
Unfavorable years		400	400	200	400	100

374.--Chiara-Wieland-Enko association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Chiara	Wieland	Enko	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	800	800	800
Normal years		600	600	600	600	600
Unfavorable years		400	400	400	400	400

378.--Chiara-Spilock-Kelk association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chiara	Spilock	Kelk	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	X	10-40	20-30	15-30	X	---
Thurber needlegrass	STTH2	10-40	X	10-40	15-25	1-10	X	---
Basin wildrye	ELCI2	5-15	---	5-15	---	2-10	---	---
Indian ricegrass	ORHY	2-10	X	2-10	---	---	X	10-30
Webber ricegrass	ORWE	2-10	---	2-10	---	---	---	---
Bluegrass	POA++	2-10	X	2-10	---	---	X	---
Nevada bluegrass	PONE3	---	---	---	2-10	2-5	---	---
Idaho fescue	FEID	---	---	---	---	15-40	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	X	2-15	10-15	5-10	X	10-20
Globemallow	SPHAE	2-5	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	X	---	2-5	1-5	X	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	5-10	X	---
Other perennial forbs	PPFF	2-10	X	2-10	2-5	5-15	X	5-15
Big sagebrush	ARTR2	10-15	---	10-15	10-15	---	X	---
Black sagebrush	ARARN	---	X	---	---	---	---	5-15
Downy rabbitbrush	CHVIP	---	X	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	1-10	5-15	X	1-5
Mountain big sagebrush	ARTRV	---	---	---	---	10-15	---	---
Spiny hopsage	GRSP	---	---	---	---	---	---	1-5
Purple sage	SACA9	---	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	X	5-15	5-10	5-15	X	2-4
Utah juniper	JUOS	---	X	---	---	---	X	---

Range site number	O25X019N	O25X060N	O25X019N	O25X014N	O25X012N	O25X059N	O25X025N
Potential production (lb/acre):							
Favorable years	800	400	800	1,000	1,200	500	200
Normal years	600	275	600	800	900	350	150
Unfavorable years	400	150	400	600	600	200	100

379.--Chiara-Kelk-Kelk, rarely flooded association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Chiara	Kelk	Kelk, rarely flooded	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	---	---	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	---	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	50-60	---	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	---	10-30	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	---	---	2-10	2-10
Bluegrass	POA++	2-10	2-10	---	---	2-10	2-10
Western wheatgrass	AGSM	---	---	5-15	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Other perennial grasses	PPGG	2-15	2-15	5-20	10-20	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	---	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-8	5-15	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	---	10-15	10-15
Basin big sagebrush	ARTRT*	---	---	15-20	---	---	---
Black greasewood	SAVE4	---	---	2-10	---	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Purple sage	SACA9	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---
Other shrubs	SSSS	5-15	5-15	1-4	2-4	5-15	5-15
Range site number		O25X019N	O25X019N	O24X006N	O25X025N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	1,500	200	800	800
Normal years		600	600	1,100	150	600	600
Unfavorable years		400	400	600	100	400	400

380.--Chiara-Peeko-Izod association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Chiara	Peeko	Izod	1	2	3
Bluebunch wheatgrass	AGSP	10-40	---	---	20-30	10-40	---
Thurber needlegrass	STTH2	10-40	10-15	10-15	15-25	10-40	---
Basin wildrye	ELCI2	5-15	---	---	---	5-15	---
Indian ricegrass	ORHY	2-10	10-15	10-15	---	2-10	10-30
Webber ricegrass	ORWE	2-10	---	---	---	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	5-20	5-20	10-15	2-15	10-20
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	2-10	5-15
Big sagebrush	ARTR2	10-15	---	---	10-15	10-15	---
Black sagebrush	ARARN	---	25-35	25-35	---	---	5-15
Antelope bitterbrush	PUTR2	---	---	---	1-10	---	1-5
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	1-5
Purple sage	SACA9	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	5-10	5-15	2-4
Range site number		O25X019N	O24X030N	O24X030N	O25X014N	O25X019N	O25X025N
Potential production (lb/acre):							
Favorable years		800	500	500	1,000	800	200
Normal years		600	350	350	800	600	150
Unfavorable years		400	250	250	600	400	100

400.--Bilbo-Gance-Tustell association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Bilbo	Gance	Tustell	1	2	3
Bluebunch wheatgrass	AGSP	40-80	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	5-15	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	2-5	5-15	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-5	2-10	2-10	2-10	2-10	10-20
Webber ricegrass	ORWE	---	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	---	2-10	2-10	2-10	2-10	---
Needleandthread	STCO4	---	---	---	---	---	20-30
Thickspike wheatgrass	AGDA	---	---	---	---	---	2-10
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-10	2-15	2-15	2-15	2-15	2-5
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---
Globemallow	SPHAE	---	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	10-20
Big sagebrush	ARTR2	2-10	10-15	10-15	10-15	10-15	10-20
Antelope bitterbrush	PUTR2	1-10	---	---	---	---	---
Spiny hopsage	GRSP	---	---	---	---	---	1-5
Other shrubs	SSSS	2-8	5-15	5-15	5-15	5-15	2-10
Range site number		O25X015N	O25X019N	O25X019N	O25X019N	O25X019N	O24X017N
Potential production (lb/acre):							
Favorable years		1,000	800	800	800	800	900
Normal years		700	600	600	600	600	700
Unfavorable years		500	400	400	400	400	500

403.--Bilbo-Shivlum-McIvey association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Bilbo	Shivlum	McIvey	1	2	3
Bluebunch wheatgrass	AGSP	40-80	15-30	15-30	40-80	---	20-30
Thurber needlegrass	STTH2	5-15	1-10	1-10	5-15	---	15-25
Basin wildrye	ELCI2	2-5	2-10	2-10	2-5	---	---
Indian ricegrass	ORHY	2-5	---	---	2-5	---	---
Idaho fescue	FEID	---	15-40	15-40	---	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	---	2-10
Streambank wheatgrass	AGRI	---	---	---	---	X	---
Bluegrass	POA++	---	---	---	---	X	---
Tufted hairgrass	DECA5	---	---	---	---	X	---
Sedge	CAREX	---	---	---	---	X	---
Rush	JUNCU	---	---	---	---	X	---
Other perennial grasses	PPGG	2-10	5-10	5-10	2-10	X	10-15
Tapertip hawksbeard	CRAC2	2-5	1-5	1-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	---	5-10	5-10	---	---	2-5
Other perennial forbs	PPFF	2-10	5-15	5-15	2-10	X	2-5
Big sagebrush	ARTR2	2-10	---	---	2-10	---	10-15
Antelope bitterbrush	PUTR2	1-10	5-15	5-15	1-10	---	1-10
Mountain big sagebrush	ARTRV	---	10-15	10-15	---	---	---
Other shrubs	SSSS	2-8	5-15	5-15	2-8	X	5-10
Quaking aspen	POTR5	---	---	---	---	X	---
Range site number		O25X015N	O25X012N	O25X012N	O25X015N	O25X064N	O25X014N
Potential production (lb/acre):							
Favorable years		1,000	1,200	1,200	1,000	1,600	1,000
Normal years		700	900	900	700	1,300	800
Unfavorable years		500	600	600	500	1,000	600

411.--Bilbo-Wieland-Soughe association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bilbo	Wieland	Soughe	1	2	3	4
Bluebunch wheatgrass	AGSP	40-80	10-40	10-40	10-40	---	10-40	---
Thurber needlegrass	STTH2	5-15	10-40	10-40	10-40	---	10-40	---
Basin wildrye	ELCI2	2-5	5-15	5-15	5-15	---	5-15	---
Indian ricegrass	ORHY	2-5	2-10	2-10	2-10	---	2-10	10-30
Webber ricegrass	ORWE	---	2-10	2-10	2-10	---	2-10	---
Bluegrass	POA++	---	2-10	2-10	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-10	2-15	2-15	2-15	---	2-15	10-20
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---	---
Globemallow	SPHAE	---	2-5	2-5	2-5	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	---	2-10	5-15
Big sagebrush	ARTR2	2-10	10-15	10-15	10-15	---	10-15	---
Antelope bitterbrush	PUTR2	1-10	---	---	---	---	---	1-5
Downy rabbitbrush	CHVIP	---	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	10-25
Other shrubs	SSSS	2-8	5-15	5-15	5-15	---	5-15	2-4
Range site number		O25X015N	O25X019N	O25X019N	O25X019N	None	O25X019N	O25X025N
Potential production (lb/acre):								
Favorable years		1,000	800	800	800	---	800	200
Normal years		700	600	600	600	---	600	150
Unfavorable years		500	400	400	400	---	400	100

413.--Vanwyper-Bilbo-Soughe association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Vanwyper	Blibo	Soughe	1	2	3
Bluebunch wheatgrass	AGSP	40-80	40-80	10-40	15-40	10-40	---
Thurber needlegrass	STTH2	5-15	5-15	10-40	---	10-40	---
Basin wildrye	ELCI2	2-5	2-5	5-15	2-5	5-15	50-60
Indian ricegrass	ORHY	2-5	2-5	2-10	---	2-10	---
Webber ricegrass	ORWE	---	---	2-10	---	2-10	---
Bluegrass	POA++	---	---	2-10	2-10	2-10	---
Idaho fescue	FEID	---	---	---	20-40	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	2-10	2-10	2-15	2-10	2-15	15-20
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	---	---
Globemallow	SPHAE	---	---	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	5-10
Big sagebrush	ARTR2	2-10	2-10	10-15	5-15	10-15	---
Antelope bitterbrush	PUTR2	1-10	1-10	---	1-5	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	2-8	2-8	5-15	---	5-15	2-5
Range site number		O25X015N	O25X015N	O25X019N	O25X027N	O25X019N	O25X003N
Potential production (lb/acre):							
Favorable years		1,000	1,000	800	1,300	800	2,500
Normal years		700	700	600	900	600	1,900
Unfavorable years		500	500	400	600	400	1,200

414.--Vanwyper-Loomis association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Vanwyper	Loomis	1	2	3	4
Bluebunch wheatgrass	AGSP	40-80	---	20-30	10-40	10-40	---
Thurber needlegrass	STTH2	5-15	10-15	15-25	10-40	10-40	---
Basin wildrye	ELCI2	2-5	---	---	5-15	5-15	---
Indian ricegrass	ORHY	2-5	10-15	---	2-10	2-10	---
Bluegrass	POA++	---	2-10	---	2-10	2-10	---
Webber ricegrass	ORWE	---	---	---	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	2-10	---	---	---
Other perennial grasses	PPGG	2-10	5-20	10-15	2-15	2-15	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---
Globemallow	SPHAE	---	2-5	---	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---
Other perennial forbs	PPFF	2-10	2-10	2-5	2-10	2-10	---
Big sagebrush	ARTR2	2-10	---	10-15	10-15	10-15	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	---	---	---
Black sagebrush	ARARN	---	25-35	---	---	---	---
Other shrubs	SSSS	2-8	5-15	5-10	5-15	5-15	---
Range site number		O25X015N	O24X030N	O25X014N	O25X019N	025X019N	None
Potential production (lb/acre):							
Favorable years		1,000	500	1,000	800	800	---
Normal years		700	350	800	600	600	---
Unfavorable years		500	250	600	400	400	---

415.--Vanwyper-Akler-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Vanwyper	Akler	Eboda	1	2	3
Bluebunch wheatgrass	AGSP	40-80	15-40	15-40	15-30	15-30	---
Thurber needlegrass	STTH2	5-15	15-40	---	1-10	---	---
Basin wildrye	ELCI2	2-5	---	2-5	2-10	---	50-60
Indian ricegrass	ORHY	2-5	---	---	---	---	---
Webber ricegrass	ORWE	---	5-15	---	---	---	---
Bluegrass	POA++	---	5-10	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5	---
Idaho fescue	FEID	---	---	20-40	15-40	30-50	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	2-10	1-10	2-10	5-10	5-15	15-20
Tapertip hawksbeard	CRAC2	2-5	---	2-5	1-5	---	---
Balsamroot	BALSA	---	2-5	---	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	2-5	5-10	---	---
Other perennial forbs	PPFF	2-10	5-10	2-10	5-15	5-20	5-10
Big sagebrush	ARTR2	2-10	---	5-15	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-5	5-15	1-10	---
Low sagebrush	ARAR8	---	15-25	---	---	10-25	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	2-8	5-15	---	5-15	5-15	2-5

Range site number	O25X015N	O25X018N	O25X027N	O25X012N	O25X017N	O25X003N
Potential production (lb/acre):						
Favorable years	1,000	800	1,300	1,200	1,000	2,500
Normal years	700	600	900	900	700	1,900
Unfavorable years	500	400	600	600	400	1,200

416.--Vanwyper-Roca association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Vanwyper	Roca	1	2	3
Bluebunch wheatgrass	AGSP	40-80	20-30	20-30	20-30	10-40
Thurber needlegrass	STTH2	5-15	15-25	15-25	15-25	10-40
Basin wildrye	ELCI2	2-5	---	---	---	5-15
Indian ricegrass	ORHY	2-5	---	---	---	2-10
Nevada bluegrass	PONE3	---	2-10	2-10	2-10	---
Webber ricegrass	ORWE	---	---	---	---	2-10
Bluegrass	POA++	---	---	---	---	2-10
Other perennial grasses	PPGG	2-10	10-15	10-15	10-15	2-15
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	2-5	---
Globemallow	SPHAE	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-5	2-5	2-5	2-10
Big sagebrush	ARTR2	2-10	10-15	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	---
Other shrubs	SSSS	2-8	5-10	5-10	5-10	5-15
Range site number		O25X015N	O25X014N	O25X014N	O25X014N	O25X019N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,000	1,000	800
Normal years		700	800	800	800	600
Unfavorable years		500	600	600	600	400

417.--Vanwyper-Linkup-Loomis association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Vanwyper	Linkup	Loomis	1	2
Bluebunch wheatgrass	AGSP	40-80	15-40	---	20-30	20-30
Thurber needlegrass	STTH2	5-15	15-40	10-15	15-25	15-25
Basin wildrye	ELCI2	2-5	---	---	---	---
Indian ricegrass	ORHY	2-5	---	10-15	---	---
Webber ricegrass	ORWE	---	5-15	---	---	---
Bluegrass	POA++	---	5-10	2-10	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	2-10
Other perennial grasses	PPGG	2-10	1-10	5-20	10-15	10-15
Tapertip hawksbeard	CRAC2	2-5	---	---	2-5	2-5
Balsamroot	BALSA	---	2-5	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	2-5
Other perennial forbs	PPFF	2-10	5-10	2-10	2-5	2-5
Big sagebrush	ARTR2	2-10	---	---	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	---	---	1-10	1-10
Low sagebrush	ARAR8	---	15-25	---	---	---
Black sagebrush	ARARN	---	---	25-35	---	---
Other shrubs	SSSS	2-8	5-15	5-15	5-10	5-10
Range site number		O25X015N	O25X018N	O24X030N	O25X014N	O25X014N
Potential production (lb/acre):						
Favorable years		1,000	800	500	1,000	1,000
Normal years		700	600	350	800	800
Unfavorable years		500	400	250	600	600

418.--Vanwyper-Connel-Hunewill association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Vanwyper	Connel	Hunewill	1	2	3
Bluebunch wheatgrass	AGSP	40-80	10-40	---	10-40	10-40	---
Thurber needlegrass	STTH2	5-15	10-40	---	10-40	10-40	---
Basin wildrye	ELCI2	2-5	5-15	---	5-15	5-15	---
Indian ricegrass	ORHY	2-5	2-10	10-20	2-10	2-10	10-30
Webber ricegrass	ORWE	---	2-10	---	2-10	2-10	---
Bluegrass	POA++	---	2-10	---	2-10	2-10	---
Needleandthread	STCO4	---	---	20-30	---	---	---
Thickspike wheatgrass	AGDA	---	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	5-10
Other perennial grasses	PPGG	2-10	2-15	2-5	2-15	2-15	10-20
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---
Globemallow	SPHAE	---	2-5	---	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	10-20	2-10	2-10	5-15
Big sagebrush	ARTR2	2-10	10-15	10-20	10-15	10-15	---
Antelope bitterbrush	PUTR2	1-10	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	1-5	---	---	1-5
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25
Other shrubs	SSSS	2-8	5-15	2-10	5-15	5-15	2-4
Range site number		O25X015N	O25X019N	O24X017N	O25X019N	O25X019N	O25X025N
Potential production (lb/acre):							
Favorable years		1,000	800	900	800	800	200
Normal years		700	600	700	600	600	150
Unfavorable years		500	400	500	400	400	100

431.--Gance-Shayla-Roca association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Gance	Shayla	Roca	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	---	20-30	15-30	---	---	15-40
Thurber needlegrass	STTH2	10-40	---	15-25	1-10	---	---	15-40
Basin wildrye	ELCI2	5-15	---	---	2-10	---	50-60	---
Indian ricegrass	ORHY	2-10	10-30	---	---	---	---	---
Webber ricegrass	ORWE	2-10	---	---	---	---	---	5-15
Bluegrass	POA++	2-10	---	---	---	---	---	5-10
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	2-5
Nevada bluegrass	PONE3	---	---	2-10	2-5	---	5-15	---
Idaho fescue	FEID	---	---	---	15-40	---	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	2-15	10-20	10-15	5-10	---	15-20	1-10
Globemallow	SPHAE	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	1-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	5-10	---	---	---
Balsamroot	BALSA	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	5-15	2-5	5-15	---	5-10	5-10
Big sagebrush	ARTR2	10-15	---	10-15	---	---	---	---
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	1-5	1-10	5-15	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---	---
Purple sage	SACA9	---	1-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Low sagebrush	ARAR8	---	---	---	---	---	---	15-25
Other shrubs	SSSS	5-15	2-4	5-10	5-15	---	2-5	5-15
Range site number		O25X019N	O25X025N	O25X014N	O25X012N	None	O25X003N	O25X018N
Potential production (lb/acre):								
Favorable years		800	200	1,000	1,200	---	2,500	800
Normal years		600	150	800	900	---	1,900	600
Unfavorable years		400	100	600	600	---	1,200	400

432.--Gance-Chiara-Hunnton association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Gance	Chiara	Hunnton	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	800
Normal years		600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400

440.--Devilsgait-Woofus-Devilsgait, gravelly substratum association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Devilsgait	Woofus	Devilsgait, gravelly substratum	1	2	3	4
Wildrye	ELYMU	30-60	30-60	30-60	---	30-60	---	30-60
Nevada bluegrass	PONE3	5-10	5-10	5-10	---	5-10	---	5-10
Inland saltgrass	DIST	5-10	5-10	5-10	5-10	5-10	---	5-10
Mat muhly	MURI	2-10	2-10	2-10	---	2-10	---	2-10
Basin wildrye	ELCI2	---	---	---	40-60	---	50-60	---
Alkali sacaton	SPAI	---	---	---	15-30	---	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15	---
Other perennial grasses	PPGG	5-15	5-15	5-15	2-8	5-15	5-20	5-15
Sierra clover	TRWO	2-5	2-5	2-5	---	2-5	---	2-5
Other perennial forbs	PPFF	5-10	5-10	5-10	2-8	5-10	2-8	5-10
Willow	SALIX	5-10	5-10	5-10	---	5-10	---	5-10
Basin big sagebrush	ARTRT*	2-5	2-5	2-5	---	2-5	15-20	2-5
Silver sagebrush	ARCA13	2-5	2-5	2-5	---	2-5	---	2-5
Black greasewood	SAVE4	---	---	---	5-15	---	2-10	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Other shrubs	SSSS	2-8	2-8	2-8	2-5	2-8	1-4	2-8
Range site number		O25X001N	O25X001N	O25X001N	O24X007N	O25X001N	O24X006N	O25X001N
Potential production (lb/acre):								
Favorable years		3,000	3,000	3,000	1,900	3,000	1,500	3,000
Normal years		2,500	2,500	2,500	1,400	2,500	1,100	2,500
Unfavorable years		1,800	1,800	1,800	800	1,800	600	1,800

441.--Devilsgait-Devilsgait, frequently flooded-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Devilsgait	Devilsgait, frequently flooded	Ocala	1	2
Basin wildrye	ELCI2	50-60	---	40-60	50-60	5-15
Nevada bluegrass	PONE3	5-15	5-10	---	---	---
Mat muhly	MURI	2-10	2-10	---	---	---
Sedge	CAREX	1-5	---	---	---	---
Wildrye	ELYMU	---	30-60	---	---	---
Inland saltgrass	DIST	---	5-10	5-10	---	---
Alkali sacaton	SPAI	---	---	15-30	---	---
Western wheatgrass	AGSM	---	---	---	5-15	---
Bluebunch wheatgrass	AGSP	---	---	---	---	10-40
Thurber needlegrass	STTH2	---	---	---	---	10-40
Indian ricegrass	ORHY	---	---	---	---	2-10
Webber ricegrass	ORWE	---	---	---	---	2-10
Bluegrass	POA++	---	---	---	---	2-10
Other perennial grasses	PPGG	15-20	5-15	2-8	5-20	2-15
Sierra clover	TRWO	---	2-5	---	---	---
Globemallow	SPHAE	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	5-10	2-8	2-8	2-10
Basin big sagebrush	ARTRT*	10-15	2-5	---	15-20	---
Willow	SALIX	---	5-10	---	---	---
Silver sagebrush	ARCA13	---	2-5	---	---	---
Black greasewood	SAVE4	---	---	5-15	2-10	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	10-15
Other shrubs	SSSS	2-5	2-8	2-5	1-4	5-15

Range site number	O25X003N	O25X001N	O24X007N	O24X006N	O25X019N
Potential production (lb/acre):					
Favorable years	2,500	3,000	1,900	1,500	800
Normal years	1,900	2,500	1,400	1,100	600
Unfavorable years	1,200	1,800	800	600	400

442.--Devilsgait-Crooked Creek association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Devilsgait	Crooked Creek	1	2	3
Basin wildrye	ELCI2	50-60	50-60	50-60	---	40-60
Nevada bluegrass	PONE3	5-15	5-15	5-15	5-10	---
Mat muhly	MURI	2-10	2-10	2-10	---	---
Sedge	CAREX	1-5	1-5	1-5	5-10	---
Tufted hairgrass	DECA5	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	5-10	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Inland saltgrass	DIST	---	---	---	---	5-10
Other perennial grasses	PPGG	15-20	15-20	15-20	2-10	2-8
Sierra clover	TRWO	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-10	10-20	2-8
Basin big sagebrush	ARTRT*	10-15	10-15	10-15	---	---
Black greasewood	SAVE4	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	2-5
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5
Range site number		O25X003N	O25X003N	O25X003N	O25X005N	O24X007N
Potential production (lb/acre):						
Favorable years		2,500	2,500	2,500	2,000	1,900
Normal years		1,900	1,900	1,900	1,700	1,400
Unfavorable years		1,200	1,200	1,200	1,000	800

443.--Devilsgait-Sonoma association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Devilsgait	Sonoma	1	2	3
Wildrye	ELYMU	30-60	30-60	---	---	---
Nevada bluegrass	PONE3	5-10	5-10	---	5-15	---
Inland saltgrass	DIST	5-10	5-10	5-10	---	---
Mat muhly	MURI	2-10	2-10	---	2-10	---
Basin wildrye	ELCI2	---	---	40-60	50-60	50-60
Alkali sacaton	SPAI	---	---	15-30	---	---
Sedge	CAREX	---	---	---	1-5	---
Western wheatgrass	AGSM	---	---	---	---	5-15
Other perennial grasses	PPGG	5-15	5-15	2-8	15-20	5-20
Sierra clover	TRWO	2-5	2-5	---	---	---
Other perennial forbs	PPFF	5-10	5-10	2-8	5-10	2-8
Willow	SALIX	5-10	5-10	---	---	---
Basin big sagebrush	ARTRT*	2-5	2-5	---	10-15	15-20
Silver sagebrush	ARCA13	2-5	2-5	---	---	---
Black greasewood	SAVE4	---	---	5-15	---	2-10
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5
Other shrubs	SSSS	2-8	2-8	2-5	2-5	1-4
Range site number		O25X001N	O25X001N	O24X007N	O25X003N	O24X006N
Potential production (lb/acre):						
Favorable years		3,000	3,000	1,900	2,500	1,500
Normal years		2,500	2,500	1,400	1,900	1,100
Unfavorable years		1,800	1,800	800	1,200	600

447.--Donna gravelly loam, 2 to 8 percent slopes

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name	Inclusion number--	
		Donna	1	2
Bluebunch wheatgrass	AGSP	15-40	---	20-30
Thurber needlegrass	STTH2	15-40	---	15-25
Webber ricegrass	ORWE	5-15	---	---
Bluegrass	POA++	5-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---
Nevada bluegrass	PONE3	---	40-60	2-10
Alpine timothy	PHAL2	---	20-40	---
Sedge	CAREX	---	5-15	---
Mat muhly	MURI	---	5-15	---
Basin wildrye	ELCI2	---	5-15	---
Meadow barley	HOBR2	---	2-5	---
Other perennial grasses	PPGG	1-10	2-8	10-15
Balsamroot	BALSA	2-5	---	---
Cinquefoil	POTEN	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	2-5
Other perennial forbs	PPFF	5-10	2-10	2-5
Low sagebrush	ARAR8	15-25	---	---
Big sagebrush	ARTR2	---	---	10-15
Antelope bitterbrush	PUTR2	---	---	1-10
Other shrubs	SSSS	5-15	2-5	5-10

Range site number	O25X018N	O25X006N	O25X014N
Potential production (lb/acre):			
Favorable years	800	1,600	1,000
Normal years	600	1,300	800
Unfavorable years	400	800	600

448.--Donna-Stampede-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Donna	Stampede	Quarz	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	20-30	20-30	---	---	10-40	10-40
Thurber needlegrass	STTH2	15-40	15-25	15-25	---	---	10-40	10-40
Webber ricegrass	ORWE	5-15	---	---	---	---	2-10	2-10
Bluegrass	POA++	5-10	---	---	---	---	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	2-10	5-15	40-60	---	---
Basin wildrye	ELCI2	---	---	---	50-60	5-15	5-15	5-15
Mat muhly	MURI	---	---	---	2-10	5-15	---	---
Sedge	CAREX	---	---	---	1-5	5-15	---	---
Alpine timothy	PHAL2	---	---	---	---	20-40	---	---
Meadow barley	HOBR2	---	---	---	---	2-5	---	---
Indian ricegrass	ORHY	---	---	---	---	---	2-10	2-10
Other perennial grasses	PPGG	1-10	10-15	10-15	15-20	2-8	2-15	2-15
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	---	---	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	---	---
Globemallow	SPHAE	---	---	---	---	---	2-5	2-5
Other perennial forbs	PPFF	5-10	2-5	2-5	5-10	2-10	2-10	2-10
Low sagebrush	ARAR8	15-25	---	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---	10-15	10-15
Antelope bitterbrush	PUTR2	---	1-10	1-10	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---	---
Other shrubs	SSSS	5-15	5-10	5-10	2-5	2-5	5-15	5-15
Range site number		O25X018N	O25X014N	O25X014N	O25X003N	O25X006N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	1,000	1,000	2,500	1,600	800	800
Normal years		600	800	800	1,900	1,300	600	600
Unfavorable years		400	600	600	1,200	800	400	400

449.--Donna-Stampede-Short Creek association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Donna	Stampede	Short Creek	1	2	3
Bluebunch wheatgrass	AGSP	15-40	20-30	40-80	15-30	30-50	---
Thurber needlegrass	STTH2	15-40	15-25	5-15	---	2-10	---
Webber ricegrass	ORWE	5-15	---	---	---	---	---
Bluegrass	POA++	5-10	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	---	---
Nevada bluegrass	PONE3	---	2-10	---	---	2-5	5-15
Basin wildrye	ELCI2	---	---	2-5	---	5-10	50-60
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Idaho fescue	FEID	---	---	---	30-50	2-5	---
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	1-10	10-15	2-10	5-15	5-10	15-20
Balsamroot	BALSA	2-5	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5	---
Other perennial forbs	PPFF	5-10	2-5	2-10	5-20	2-5	5-10
Low sagebrush	ARAR8	15-25	---	---	10-25	---	---
Big sagebrush	ARTR2	---	10-15	2-10	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-10	1-10	2-15	---
Mountain big sagebrush	ARTRV	---	---	---	---	5-10	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-10	2-8	5-15	2-10	2-5

Range site number	O25X018N	O25X014N	O25X015N	O25X017N	O25X009N	O25X003N
Potential production (lb/acre):						
Favorable years	800	1,000	1,000	1,000	1,300	2,500
Normal years	600	800	700	700	900	1,900
Unfavorable years	400	600	500	400	700	1,200

452.--Donna-Bilbo-Stampede association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Donna	Bilbo	Stampede	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	40-80	20-30	---	---	---	15-30
Thurber needlegrass	STTH2	15-40	5-15	15-25	---	---	---	1-10
Webber ricegrass	ORWE	5-15	---	---	---	---	---	---
Bluegrass	POA++	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-5	---	50-60	---	---	2-10
Indian ricegrass	ORHY	---	2-5	---	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-10	5-15	5-10	5-10	2-5
Mat muhly	MURI	---	---	---	2-10	---	---	---
Sedge	CAREX	---	---	---	1-5	5-10	5-10	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	30-60	---
Alpine timothy	PHAL2	---	---	---	---	5-10	5-10	---
Idaho fescue	FEID	---	---	---	---	---	---	15-40
Other perennial grasses	PPGG	1-10	2-10	10-15	15-20	2-10	2-10	5-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---	---	1-5
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	5-10
Sierra clover	TRWO	---	---	---	---	2-5	2-5	---
Cinquefoil	POTEN	---	---	---	---	2-5	2-5	---
Other perennial forbs	PPFF	5-10	2-10	2-5	5-10	10-20	10-20	5-15
Low sagebrush	ARAR8	15-25	---	---	---	---	---	---
Big sagebrush	ARTR2	---	2-10	10-15	---	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-10	---	---	---	5-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	2-8	5-10	2-5	2-5	2-5	5-15

Range site number	O25X018N	O25X015N	O25X014N	O25X003N	O25X005N	O25X005N	O25X012N
Potential production (lb/acre):							
Favorable years	800	1,000	1,000	2,500	2,000	2,000	1,200
Normal years	600	700	800	1,900	1,700	1,700	900
Unfavorable years	400	500	600	1,200	1,000	1,000	600

454.--Donna-Short Creek-Kleckner association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Donna	Short Creek	Kleckner	1	2
Bluebunch wheatgrass	AGSP	15-40	40-80	20-30	15-40	15-30
Thurber needlegrass	STTH2	15-40	5-15	15-25	15-40	1-10
Webber ricegrass	ORWE	5-15	---	---	5-15	---
Bluegrass	POA++	5-10	---	---	5-10	---
Bottlebrush squirreltail	SIHY	2-5	---	---	2-5	---
Basin wildrye	ELCI2	---	2-5	---	---	2-10
Indian ricegrass	ORHY	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	---	2-10	---	2-5
Idaho fescue	FEID	---	---	---	---	15-40
Other perennial grasses	PPGG	1-10	2-10	10-15	1-10	5-10
Balsamroot	BALSA	2-5	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	1-5
Arrowleaf balsamroot	BASA3	---	---	2-5	---	5-10
Other perennial forbs	PPFF	5-10	2-10	2-5	5-10	5-15
Low sagebrush	ARAR8	15-25	---	---	15-25	---
Big sagebrush	ARTR2	---	2-10	10-15	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-10	---	5-15
Mountain big sagebrush	ARTRV	---	---	---	---	10-15
Other shrubs	SSSS	5-15	2-8	5-10	5-15	5-15
Range site number		O25X018N	O25X015N	O25X014N	O25X018N	O25X012N
Potential production (lb/acre):						
Favorable years		800	1,000	1,000	800	1,200
Normal years		600	700	800	600	900
Unfavorable years		400	500	600	400	600

455.--Donna-Kleckner-Donna, strongly sloping association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Donna	Kleckner	Donna, strongly sloping	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	20-30	15-40	20-30	15-40	15-30	---
Thurber needlegrass	STTH2	15-40	15-25	15-40	15-25	---	1-10	---
Webber ricegrass	ORWE	5-15	---	5-15	---	---	---	---
Bluegrass	POA++	5-10	---	5-10	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	---	2-10	---	2-5	5-10
Idaho fescue	FEID	---	---	---	---	20-40	15-40	---
Basin wildrye	ELCI2	---	---	---	---	2-5	2-10	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	1-10	10-15	1-10	10-15	2-10	5-10	2-10
Balsamroot	BALSA	2-5	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	2-5	2-5	1-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	2-5	5-10	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-10	2-5	5-10	2-5	2-10	5-15	10-20
Low sagebrush	ARAR8	15-25	---	15-25	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	5-15	---	---
Antelope bitterbrush	PUTR2	---	1-10	---	1-10	1-5	5-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Mountain big sagebrush	ARTRV	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-10	5-15	5-10	---	5-15	2-5
Range site number		O25X018N	O25X014N	O25X018N	O25X014N	O25X027N	O25X012N	O25X005N
Potential production (lb/acre):								
Favorable years		800	1,000	800	1,000	1,300	1,200	2,000
Normal years		600	800	600	800	900	900	1,700
Unfavorable years		400	600	400	600	600	600	1,000

456.--Donna-Stampede-Gance association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Donna	Stampede	Gance	1	2
Bluebunch wheatgrass	AGSP	15-40	20-30	10-40	---	---
Thurber needlegrass	STTH2	15-40	15-25	10-40	---	---
Webber ricegrass	ORWE	5-15	---	2-10	---	---
Bluegrass	POA++	5-10	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-10	---	5-10	5-10
Basin wildrye	ELCI2	---	---	5-15	---	---
Indian ricegrass	ORHY	---	---	2-10	---	---
Tufted hairgrass	DECA5	---	---	---	30-60	30-60
Alpine timothy	PHAL2	---	---	---	5-10	5-10
Sedge	CAREX	---	---	---	5-10	5-10
Other perennial grasses	PPGG	1-10	10-15	2-15	2-10	2-10
Balsamroot	BALSA	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---
Globemallow	SPHAE	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	2-5	2-5
Cinquefoil	POTEN	---	---	---	2-5	2-5
Other perennial forbs	PPFF	5-10	2-5	2-10	10-20	10-20
Low sagebrush	ARAR8	15-25	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---
Antelope bitterbrush	PUTR2	---	1-10	---	---	---
Other shrubs	SSSS	5-15	5-10	5-15	2-5	2-5
Range site number		O25X018N	O25X014N	O25X019N	O25X005N	O25X005N
Potential production (lb/acre):						
Favorable years		800	1,000	800	2,000	2,000
Normal years		600	800	600	1,700	1,700
Unfavorable years		400	600	400	1,000	1,000

457.--Donna-Gochea-Kleckner association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Donna	Gochea	Kleckner	1	2	3
Bluebunch wheatgrass	AGSP	15-40	20-30	20-30	15-30	15-30	---
Thurber needlegrass	STTH2	15-40	15-25	15-25	1-10	---	---
Webber ricegrass	ORWE	5-15	---	---	---	---	---
Bluegrass	POA++	5-10	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	2-10	2-10	2-5	---	5-15
Idaho fescue	FEID	---	---	---	15-40	30-50	---
Basin wildrye	ELCI2	---	---	---	2-10	---	50-60
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	1-10	10-15	10-15	5-10	5-15	15-20
Balsamroot	BALSA	2-5	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	1-5	---	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	5-10	---	---
Other perennial forbs	PPFF	5-10	2-5	2-5	5-15	5-20	5-10
Low sagebrush	ARAR8	15-25	---	---	---	10-25	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-10	5-15	1-10	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-10	5-10	5-15	5-15	2-5
Range site number		O25X018N	O25X014N	O25X014N	O25X012N	O25X017N	O25X003N
Potential production (lb/acre):							
Favorable years		800	1,000	1,000	1,200	1,000	2,500
Normal years		600	800	800	900	700	1,900
Unfavorable years		400	600	600	600	400	1,200

460.--Stampede-Betra-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Stampede	Betra	McIvey	1	2
Bluebunch wheatgrass	AGSP	20-30	15-30	15-30	15-30	15-30
Thurber needlegrass	STTH2	15-25	---	1-10	1-10	1-10
Nevada bluegrass	PONE3	2-10	---	2-5	2-5	2-5
Idaho fescue	FEID	---	30-50	15-40	15-40	15-40
Bluegrass	POA++	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---
Basin wildrye	ELCI2	---	---	2-10	2-10	2-10
Other perennial grasses	PPGG	10-15	5-15	5-10	5-10	5-10
Tapertip hawksbeard	CRAC2	2-5	---	1-5	1-5	1-5
Arrowleaf balsamroot	BASA3	2-5	---	5-10	5-10	5-10
Balsamroot	BALSA	---	2-5	---	---	---
Other perennial forbs	PPFF	2-5	5-20	5-15	5-15	5-15
Big sagebrush	ARTR2	10-15	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	5-15	5-15
Low sagebrush	ARAR8	---	10-25	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	10-15	10-15
Other shrubs	SSSS	5-10	5-15	5-15	5-15	5-15
Range site number		O25X014N	O25X017N	O25X012N	O25X012N	O25X012N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,200	1,200	1,200
Normal years		800	700	900	900	900
Unfavorable years		600	400	600	600	600

461.--Stampede-Kleckner association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Stampede	Kleckner	1	2
Bluebunch wheatgrass	AGSP	20-30	20-30	15-40	---
Thurber needlegrass	STTH2	15-25	15-25	15-40	---
Nevada bluegrass	PONE3	2-10	2-10	---	5-15
Webber ricegrass	ORWE	---	---	5-15	---
Bluegrass	POA++	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	50-60
Mat muhly	MURI	---	---	---	2-10
Sedge	CAREX	---	---	---	1-5
Other perennial grasses	PPGG	10-15	10-15	1-10	15-20
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---
Balsamroot	BALSA	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-5	5-10	5-10
Big sagebrush	ARTR2	10-15	10-15	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	---	---
Low sagebrush	ARAR8	---	---	15-25	---
Basin big sagebrush	ARTRT*	---	---	---	10-15
Other shrubs	SSSS	5-10	5-10	5-15	2-5
Range site number		O25X014N	O25X014N	O25X018N	O25X003N
Potential production (lb/acre):					
Favorable years		1,000	1,000	800	2,500
Normal years		800	800	600	1,900
Unfavorable years		600	600	400	1,200

462.--Stampede-Donna-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Stampede	Donna	Bilbo	1	2	3
Bluebunch wheatgrass	AGSP	20-30	15-40	40-80	---	20-30	20-30
Thurber needlegrass	STTH2	15-25	15-40	5-15	---	15-25	15-25
Nevada bluegrass	PONE3	2-10	---	---	---	2-10	2-10
Webber ricegrass	ORWE	---	5-15	---	---	---	---
Bluegrass	POA++	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	5-10	---	---
Basin wildrye	ELCI2	---	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	2-5	10-30	---	---
Other perennial grasses	PPGG	10-15	1-10	2-10	10-20	10-15	10-15
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	2-5	2-5
Arrowleaf balsamroot	BASA3	2-5	---	---	---	2-5	2-5
Balsamroot	BALSA	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-5	5-10	2-10	5-15	2-5	2-5
Big sagebrush	ARTR2	10-15	---	2-10	---	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	---	1-10	1-5	1-10	1-10
Low sagebrush	ARAR8	---	15-25	---	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Purple sage	SACA9	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---
Other shrubs	SSSS	5-10	5-15	2-8	2-4	5-10	5-10
Range site number		O25X014N	O25X018N	O25X015N	O25X025N	O25X014N	O25X014N
Potential production (lb/acre):							
Favorable years		1,000	800	1,000	200	1,000	1,000
Normal years		800	600	700	150	800	800
Unfavorable years		600	400	500	100	600	600

465.--Stampede-Gochea-Zevadez association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Stampede	Gochea	Zevadez	1	2	3
Bluebunch wheatgrass	AGSP	20-30	20-30	40-80	15-30	20-30	---
Thurber needlegrass	STTH2	15-25	15-25	5-15	1-10	15-25	---
Nevada bluegrass	PONE3	2-10	2-10	---	2-5	2-10	5-15
Basin wildrye	ELCI2	---	---	2-5	2-10	---	50-60
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Idaho fescue	FEID	---	---	---	15-40	---	---
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	10-15	10-15	2-10	5-10	10-15	15-20
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	1-5	2-5	---
Arrowleaf balsamroot	BASA3	2-5	2-5	---	5-10	2-5	---
Other perennial forbs	PPFF	2-5	2-5	2-10	5-15	2-5	5-10
Big sagebrush	ARTR2	10-15	10-15	2-10	---	10-15	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	5-15	1-10	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-10	5-10	2-8	5-15	5-10	2-5
Range site number		O25X014N	O25X014N	O25X015N	O25X012N	O25X014N	O25X003N
Potential production (lb/acre):							
Favorable years		1,000	1,000	1,000	1,200	1,000	2,500
Normal years		800	800	700	900	800	1,900
Unfavorable years		600	600	500	600	600	1,200

466.--Stampede-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Stampede	Bilbo	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	40-80	15-40	15-30	10-40	---
Thurber needlegrass	STTH2	15-25	5-15	15-40	1-10	10-40	---
Nevada bluegrass	PONE3	2-10	---	---	2-5	---	---
Basin wildrye	ELCI2	---	2-5	---	2-10	5-15	---
Indian ricegrass	ORHY	---	2-5	---	---	2-10	10-30
Webber ricegrass	ORWE	---	---	5-15	---	2-10	---
Bluegrass	POA++	---	---	5-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	5-10
Idaho fescue	FEID	---	---	---	15-40	---	---
Other perennial grasses	PPGG	10-15	2-10	1-10	5-10	2-15	10-20
Tapertip hawksbeard	CRAC2	2-5	2-5	---	1-5	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	5-10	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-10	5-10	5-15	2-10	5-15
Big sagebrush	ARTR2	10-15	2-10	---	---	10-15	---
Antelope bitterbrush	PUTR2	1-10	1-10	---	5-15	---	1-5
Low sagebrush	ARAR8	---	---	15-25	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25
Other shrubs	SSSS	5-10	2-8	5-15	5-15	5-15	2-4

Range site number	025X014N	025X015N	025X018N	025X012N	025X019N	025X025N
Potential production (lb/acre):						
Favorable years	1,000	1,000	800	1,200	800	200
Normal years	800	700	600	900	600	150
Unfavorable years	600	500	400	600	400	100

467.--Stampede-Donna-Gance association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Stampede	Donna	Gance	1	2	3
Bluebunch wheatgrass	AGSP	20-30	15-40	10-40	---	10-40	10-40
Thurber needlegrass	STTH2	15-25	15-40	10-40	---	10-40	10-40
Nevada bluegrass	PONE3	2-10	---	---	5-15	---	---
Webber ricegrass	ORWE	---	5-15	2-10	---	2-10	2-10
Bluegrass	POA++	---	5-10	2-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	5-15	50-60	5-15	5-15
Indian ricegrass	ORHY	---	---	2-10	---	2-10	2-10
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	10-15	1-10	2-15	15-20	2-15	2-15
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---
Globemallow	SPHAE	---	---	2-5	---	2-5	2-5
Other perennial forbs	PPFF	2-5	5-10	2-10	5-10	2-10	2-10
Big sagebrush	ARTR2	10-15	---	10-15	---	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	---	---	---	---	---
Low sagebrush	ARAR8	---	15-25	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-10	5-15	5-15	2-5	5-15	5-15
Range site number		O25X014N	O25X018N	O25X019N	O25X003N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		1,000	800	800	2,500	800	800
Normal years		800	600	600	1,900	600	600
Unfavorable years		600	400	400	1,200	400	400

469.--Stampede-Donna association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Stampede	Donna	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	15-40	40-80	20-30	15-40	---
Thurber needlegrass	STTH2	15-25	15-40	5-15	15-25	---	---
Nevada bluegrass	PONE3	2-10	---	---	2-10	---	5-15
Webber ricegrass	ORWE	---	5-15	---	---	---	---
Bluegrass	POA++	---	5-10	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	2-5	---	2-5	50-60
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Idaho fescue	FEID	---	---	---	---	20-40	---
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	10-15	1-10	2-10	10-15	2-10	15-20
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	2-5	---
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	2-5	---
Balsamroot	BALSA	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-5	5-10	2-10	2-5	2-10	5-10
Big sagebrush	ARTR2	10-15	---	2-10	10-15	5-15	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	1-10	1-5	---
Low sagebrush	ARAR8	---	15-25	---	---	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-10	5-15	2-8	5-10	---	2-5
Range site number		O25X014N	O25X018N	O25X015N	O25X014N	O25X027N	O25X003N
Potential production (lb/acre):							
Favorable years		1,000	800	1,000	1,000	1,300	2,500
Normal years		800	600	700	800	900	1,900
Unfavorable years		600	400	500	600	600	1,200

470.--Stampede-Puett-Peeko association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Stampede	Puett	Peeko	1	2	3
Bluebunch wheatgrass	AGSP	20-30	---	---	10-40	20-30	---
Thurber needlegrass	STTH2	15-25	---	10-15	10-40	15-25	10-15
Nevada bluegrass	PONE3	2-10	---	---	---	2-10	---
Indian ricegrass	ORHY	---	10-30	10-15	2-10	---	10-15
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---
Bluegrass	POA++	---	---	2-10	2-10	---	2-10
Basin wildrye	ELCI2	---	---	---	5-15	---	---
Webber ricegrass	ORWE	---	---	---	2-10	---	---
Other perennial grasses	PPGG	10-15	10-20	5-20	2-15	10-15	5-20
Tapertip hawksbeard	CRAC2	2-5	---	---	---	2-5	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	2-5	---
Globemallow	SPHAE	---	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-5	5-15	2-10	2-10	2-5	2-10
Big sagebrush	ARTR2	10-15	---	---	10-15	10-15	---
Antelope bitterbrush	PUTR2	1-10	1-5	---	---	1-10	---
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	5-15	25-35	---	---	25-35
Purple sage	SACA9	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	---	---	---
Other shrubs	SSSS	5-10	2-4	5-15	5-15	5-10	5-15
Range site number		O25X014N	O25X025N	O24X030N	O25X019N	O25X014N	O24X030N
Potential production (lb/acre):							
Favorable years		1,000	200	500	800	1,000	500
Normal years		800	150	350	600	800	350
Unfavorable years		600	100	250	400	600	250

477.--Hunnton-Dacker association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Hunnton	Dacker	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-15	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	10-15	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	5-20	5-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	---
Black sagebrush	ARARN	---	---	---	---	25-35	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	15-20
Black greasewood	SAVE4	---	---	---	---	---	2-10
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	1-4
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O24X030N	O24X006N
Potential production (lb/acre):							
Favorable years		800	800	800	800	500	1,500
Normal years		600	600	600	600	350	1,100
Unfavorable years		400	400	400	400	250	600

478.--Hunnton-Wieland-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hunnton	Wieland	Bilbo	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	40-80	20-30	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	5-15	15-25	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	2-5	---	5-15	---	5-15
Indian ricegrass	ORHY	2-10	2-10	2-5	---	2-10	10-20	2-10
Webber ricegrass	ORWE	2-10	2-10	---	---	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	---	---	2-10	---	2-10
Needleandthread	STCO4	---	---	---	---	---	20-30	---
Thickspike wheatgrass	AGDA	---	---	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---	---
Other perennial grasses	PPGG	2-15	2-15	2-10	10-15	2-15	2-5	2-15
Globemallow	SPHAE	2-5	2-5	---	---	2-5	---	2-5
Tapertip hawksbeard	CRAC2	---	---	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	2-10	10-20	2-10
Big sagebrush	ARTR2	10-15	10-15	2-10	10-15	10-15	10-20	10-15
Antelope bitterbrush	PUTR2	---	---	1-10	1-10	---	---	---
Spiny hopsage	GRSP	---	---	---	---	---	1-5	---
Other shrubs	SSSS	5-15	5-15	2-8	5-10	5-15	2-10	5-15
Range site number		O25X019N	O25X019N	O25X015N	O25X014N	O25X019N	O24X017N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	1,000	1,000	800	900	800
Normal years		600	600	700	800	600	700	600
Unfavorable years		400	400	500	600	400	500	400

479.--Hunnton-Wieland-Bloor association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hunnton	Wieland	Bloor	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	---
Basin wildrye	ELCI2	5-15	5-15	50-60	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	---	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	---
Western wheatgrass	AGSM	---	---	5-15	---	---
Nevada bluegrass	PONE3	---	---	---	---	40-60
Alpine timothy	PHAL2	---	---	---	---	20-40
Sedge	CAREX	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	2-5
Other perennial grasses	PPGG	2-15	2-15	5-20	2-15	2-8
Globemallow	SPHAE	2-5	2-5	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-8	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	---
Basin big sagebrush	ARTRT*	---	---	15-20	---	---
Black greasewood	SAVE4	---	---	2-10	---	---
Rubber rabbitbrush	CHNA2	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	1-4	5-15	2-5
Range site number		O25X019N	O25X019N	O24X006N	O25X019N	O25X006N
Potential production (lb/acre):						
Favorable years		800	800	1,500	800	1,600
Normal years		600	600	1,100	600	1,300
Unfavorable years		400	400	600	400	800

480.--Hunnton-Wieland-Gance association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hunnton	Wieland	Gance	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	10-30	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---	---
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	10-20	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-15	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	---	5-15	---	---
Purple sage	SACA9	---	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25	---	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-4	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X025N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	800	800	200	800	800
Normal years		600	600	600	600	150	600	600
Unfavorable years		400	400	400	400	100	400	400

481.--Hunnton-Chiara association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Hunnton	Chiara	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):					
Favorable years		800	800	800	800
Normal years		600	600	600	600
Unfavorable years		400	400	400	400

482.--Hunnton-Wieland-Hunnton, gravelly association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hunnton	Wieland	Hunnton, gravelly	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15	5-15	40-60
Indian ricegrass	ORHY	2-10	2-10	2-10	10-30	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	---	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---	---
Alkali sacaton	SPAI	---	---	---	---	---	---	15-30
Inland saltgrass	DIST	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	2-15	10-20	2-15	2-15	2-8
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-15	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---	---
Black greasewood	SAVE4	---	---	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O24X007N
Potential production (lb/acre):								
Favorable years		800	800	800	200	800	800	1,900
Normal years		600	600	600	150	600	600	1,400
Unfavorable years		400	400	400	100	400	400	800

485.--Hunnton-Wieland-Wieland, moderately steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hunnton	Wieland	Wieland, moderately steep	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	---	20-30
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	---	15-25
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	50-60	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	---	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	---	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	---	---
Western wheatgrass	AGSM	---	---	---	---	---	5-15	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	5-20	10-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	---	---	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-8	2-5
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	---	10-15
Basin big sagebrush	ARTRT*	---	---	---	---	---	15-20	---
Black greasewood	SAVE4	---	---	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	---	2-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	---	---	1-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	1-4	5-10
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O24X006N	O25X014N
Potential production (lb/acre):								
Favorable years		800	800	800	800	800	1,500	1,000
Normal years		600	600	600	600	600	1,100	800
Unfavorable years		400	400	400	400	400	600	600

486.--Hunnton-Chiara-Wieland association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hunnton	Chiara	Wieland	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	20-30
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	15-25
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	---	---	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	10-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-5
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	---	---	---	---	1-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-10
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X014N
Potential production (lb/acre):						
Favorable years		800	800	800	800	1,000
Normal years		600	600	600	600	800
Unfavorable years		400	400	400	400	600

489.--Hunnton-Wieland-Bioya association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hunnton	Wieland	Bioya	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	X
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	X
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	X
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	X
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	---
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	---
Tapertip hawksbeard	CRAC2	---	---	---	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	---	---	X
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	---
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	X
Antelope bitterbrush	PUTR2	---	---	---	---	---	X
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	---
Utah juniper	JUOS	---	---	---	---	---	X
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X059N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	500
Normal years		600	600	600	600	600	350
Unfavorable years		400	400	400	400	400	200

490.--Orovada-Bioya-Haybourne association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Orovada	Bioya	Haybourne	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	10-30	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	2-10	---	2-10
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---
Other perennial grasses	PPGG	2-15	2-15	2-15	10-20	2-15
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	5-15	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15
Downy rabbitbrush	CHVIP	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	5-15	---
Purple sage	SACA9	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X025N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	800	200	800
Normal years		600	600	600	150	600
Unfavorable years		400	400	400	100	400

491.--Orovada-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Orovada	Puett	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	---	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	---	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	---	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	10-30	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	---	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	---	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---
Other perennial grasses	PPGG	2-15	10-20	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	5-15	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	---	10-15	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---
Purple sage	SACA9	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	---	---	---
Other shrubs	SSSS	5-15	2-4	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	200	800	800	800	800
Normal years		600	150	600	600	600	600
Unfavorable years		400	100	400	400	400	400

492.--Orovada-Humdun-Puett association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Orovada	Humdun	Puett	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	---	X	20-30	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	X	15-25	10-40
Basin wildrye	ELCI2	5-15	5-15	---	---	---	5-15
Indian ricegrass	ORHY	2-10	2-10	10-30	X	---	2-10
Webber ricegrass	ORWE	2-10	2-10	---	---	---	2-10
Bluegrass	POA++	2-10	2-10	---	X	---	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	---	2-10	---
Other perennial grasses	PPGG	2-15	2-15	10-20	X	10-15	2-15
Globemallow	SPHAE	2-5	2-5	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	---	X	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	X	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-15	X	2-5	2-10
Big sagebrush	ARTR2	10-15	10-15	---	X	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	X	1-10	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	X	5-10	5-15
Utah juniper	JUOS	---	---	---	X	---	---
Range site number		O25X019N	O25X019N	O25X025N	O25X059N	O25X014N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	200	500	1,000	800
Normal years		600	600	150	350	800	600
Unfavorable years		400	400	100	200	600	400

494.--Orovada-Puett-Chiara association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Orovada	Puett	Chiara	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	---	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	---	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	---	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	10-30	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	---	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	---	2-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	5-10	---	---	---	---	---
Other perennial grasses	PPGG	2-15	10-20	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	---	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	5-15	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	---	10-15	10-15	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	1-5	---	---	---	---	---
Spiny hopsage	GRSP	---	1-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	1-5	---	---	---	---	---
Black sagebrush	ARARN	---	5-15	---	---	---	---	---
Purple sage	SACA9	---	1-5	---	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	10-25	---	---	---	---	---
Other shrubs	SSSS	5-15	2-4	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	200	800	800	800	800	800
Normal years		600	150	600	600	600	600	600
Unfavorable years		400	100	400	400	400	400	400

496.--Orovada-Grina-Upsteer association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Orovada	Grina	Upsteer	1	2	3
Bluebunch wheatgrass	AGSP	10-40	X	15-40	40-80	40-80	10-40
Thurber needlegrass	STTH2	10-40	X	---	5-15	5-15	10-40
Basin wildrye	ELCI2	5-15	---	2-5	2-5	2-5	5-15
Indian ricegrass	ORHY	2-10	X	---	2-5	2-5	2-10
Webber ricegrass	ORWE	2-10	---	---	---	---	2-10
Bluegrass	POA++	2-10	X	2-10	---	---	2-10
Idaho fescue	FEID	---	---	20-40	---	---	---
Other perennial grasses	PPGG	2-15	X	2-10	2-10	2-10	2-15
Globemallow	SPHAE	2-5	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	X	2-5	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	X	2-5	---	---	---
Other perennial forbs	PPFF	2-10	X	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	X	5-15	2-10	2-10	10-15
Antelope bitterbrush	PUTR2	---	X	1-5	1-10	1-10	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	X	---	2-8	2-8	5-15
Utah juniper	JUOS	---	X	---	---	---	---
Range site number		O25X019N	O25X059N	O25X027N	O25X015N	O25X015N	O25X019N
Potential production (lb/acre):							
Favorable years		800	500	1,300	1,000	1,000	800
Normal years		600	350	900	700	700	600
Unfavorable years		400	200	600	500	500	400

501.--Short Creek-Short Creek, very steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Short Creek	Short Creek, very steep	1	2
Bluebunch wheatgrass	AGSP	40-80	15-30	20-30	10-40
Thurber needlegrass	STTH2	5-15	1-10	15-25	10-40
Basin wildrye	ELCI2	2-5	2-10	---	5-15
Indian ricegrass	ORHY	2-5	---	---	2-10
Idaho fescue	FEID	---	15-40	---	---
Nevada bluegrass	PONE3	---	2-5	2-10	---
Webber ricegrass	ORWE	---	---	---	2-10
Bluegrass	POA++	---	---	---	2-10
Other perennial grasses	PPGG	2-10	5-10	10-15	2-15
Tapertip hawksbeard	CRAC2	2-5	1-5	2-5	---
Arrowleaf balsamroot	BASA3	---	5-10	2-5	---
Globemallow	SPHAE	---	---	---	2-5
Other perennial forbs	PPFF	2-10	5-15	2-5	2-10
Big sagebrush	ARTR2	2-10	---	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	5-15	1-10	---
Mountain big sagebrush	ARTRV	---	10-15	---	---
Other shrubs	SSSS	2-8	5-15	5-10	5-15
Range site number		O25X015N	O25X012N	O25X014N	O25X019N
Potential production (lb/acre):					
Favorable years		1,000	1,200	1,000	800
Normal years		700	900	800	600
Unfavorable years		500	600	600	400

511.--Dacker-Gance-Kelk association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Dacker	Gance	Kelk	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	10-30	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	---	2-10
Bottlebrush squirreltail	SIHY	---	---	---	---	5-10	---
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	10-20	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-15	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	10-15
Downy rabbitbrush	CHVIP	---	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	---	5-15	---
Purple sage	SACA9	---	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	10-25	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-4	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X025N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	200	800
Normal years		600	600	600	600	150	600
Unfavorable years		400	400	400	400	100	400

512.--Dacker-Zevadez-Kelk association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Dacker	Zevadez	Kelk	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	800	800	800	800	800
Normal years		600	600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400	400

513.--Dacker-Dewar-Hunewill association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Dacker	Dewar	Hunewill	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	---	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	10-20	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	---	2-10
Needleandthread	STCO4	---	---	---	---	20-30	---
Thickspike wheatgrass	AGDA	---	---	---	---	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-5	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	10-20	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-20	10-15
Spiny hopsage	GRSP	---	---	---	---	1-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-10	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O24X017N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	900	800
Normal years		600	600	600	600	700	600
Unfavorable years		400	400	400	400	500	400

516.--Dacker-Yuko-Wieland association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Dacker	Yuko	Wieland	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	---	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	10-30	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	---	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Other perennial grasses	PPGG	2-15	2-15	2-15	10-20	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	---	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	5-15	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	---	5-15	---	---
Purple sage	SACA9	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---
Other shrubs	SSSS	5-15	5-15	5-15	2-4	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X025N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	200	800	800
Normal years		600	600	600	150	600	600
Unfavorable years		400	400	400	100	400	400

521.--Norfork-Loomis-Chiara association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Norfork	Loomis	Chiara	1	2	3	4
Indian ricegrass	ORHY	10-15	10-15	2-10	---	---	2-10	---
Thurber needlegrass	STTH2	10-15	10-15	10-40	---	---	10-40	---
Bluegrass	POA++	2-10	2-10	2-10	---	---	2-10	---
Bluebunch wheatgrass	AGSP	---	---	10-40	---	---	10-40	---
Basin wildrye	ELCI2	---	---	5-15	---	---	5-15	---
Webber ricegrass	ORWE	---	---	2-10	---	---	2-10	---
Wildrye	ELYMU	---	---	---	---	30-60	---	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---	---
Inland saltgrass	DIST	---	---	---	---	5-10	---	---
Mat muhly	MURI	---	---	---	---	2-10	---	---
Other perennial grasses	PPGG	5-20	5-20	2-15	---	5-15	2-15	---
Globemallow	SPHAE	2-5	2-5	2-5	---	---	2-5	---
Sierra clover	TRWO	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	---	5-10	2-10	---
Black sagebrush	ARARN	25-35	25-35	---	---	---	---	---
Big sagebrush	ARTR2	---	---	10-15	---	---	10-15	---
Willow	SALIX	---	---	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	2-5	---	---
Silver sagebrush	ARCA13	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	5-15	---	2-8	5-15	---
Range site number		O24X030N	O24X030N	O25X019N	None	O25X001N	O25X019N	None
Potential production (lb/acre):								
Favorable years		500	500	800	---	3,000	800	---
Normal years		350	350	600	---	2,500	600	---
Unfavorable years		250	250	400	---	1,800	400	---

530.--Upville-Connel-Halleck association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Upville	Connel	Halleck	1	2	3
Bluebunch wheatgrass	AGSP	20-30	10-40	---	---	---	20-30
Thurber needlegrass	STTH2	15-25	10-40	---	---	---	15-25
Nevada bluegrass	PONE3	2-10	---	5-10	---	5-10	2-10
Basin wildrye	ELCI2	---	5-15	---	---	---	---
Indian ricegrass	ORHY	---	2-10	---	---	---	---
Webber ricegrass	ORWE	---	2-10	---	---	---	---
Bluegrass	POA++	---	2-10	---	X	---	---
Tufted hairgrass	DECA5	---	---	30-60	---	30-60	---
Alpine timothy	PHAL2	---	---	5-10	---	5-10	---
Sedge	CAREX	---	---	5-10	X	5-10	---
Rush	JUNCU	---	---	---	X	---	---
Streambank wheatgrass	AGRI	---	---	---	X	---	---
Western wheatgrass	AGSM	---	---	---	X	---	---
Other perennial grasses	PPGG	10-15	2-15	2-10	X	2-10	10-15
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	2-5
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	2-5
Globemallow	SPHAE	---	2-5	---	---	---	---
Sierra clover	TRWO	---	---	2-5	---	2-5	---
Cinquefoil	POTEN	---	---	2-5	---	2-5	---
Other perennial forbs	PPFF	2-5	2-10	10-20	X	10-20	2-5
Big sagebrush	ARTR2	10-15	10-15	---	---	---	10-15
Antelope bitterbrush	PUTR2	1-10	---	---	---	---	1-10
Woods rose	ROWO	---	---	---	X	---	---
Currant	RIBES	---	---	---	X	---	---
Willow	SALIX	---	---	---	X	---	---
Other shrubs	SSSS	5-10	5-15	2-5	X	2-5	5-10
Cottonwood	POPUL	---	---	---	X	---	---

Range site number	O25X014N	O25X019N	O25X005N	O25X053N	O25X005N	O25X014N
Potential production (lb/acre):						
Favorable years	1,000	800	2,000	2,500	2,000	1,000
Normal years	800	600	1,700	2,000	1,700	800
Unfavorable years	600	400	1,000	1,500	1,000	600

540.--Gando-Inpendence-Bullump association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Gando	Inpendence	Bullump	1	2	3	4
Idaho fescue	FEID	10-30	---	5-15	2-10	---	X	---
Bluegrass	POA++	5-15	2-10	---	---	---	---	X
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	---	5-15	2-5	---	---	---
Mountain brome	BRMA4	---	5-10	10-20	5-15	---	X	---
Slender wheatgrass	AGTR	---	5-10	---	5-15	2-5	X	---
Sedge	CAREX	---	2-10	---	---	---	---	X
Western needlegrass	STOC2	---	2-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	10-20	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	2-5	---	---	---
Letterman needlegrass	STLE4	---	---	2-5	2-5	60-70	---	---
Spike-fescue	HEKI	---	---	2-5	2-10	---	---	---
Streambank wheatgrass	AGRI	---	---	---	---	---	---	X
Tufted hairgrass	DECA5	---	---	---	---	---	---	X
Rush	JUNCU	---	---	---	---	---	---	X
Other perennial grasses	PPGG	2-8	5-15	5-15	5-15	2-5	X	X
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	---
Geranium	GERAN	---	---	---	2-10	---	X	---
Groundsel	SENEC	---	---	---	2-10	---	---	---
Tailcup lupine	LUCA	---	---	---	---	20-40	---	---
Horsemint	MONAR	---	---	---	---	---	X	---
Lupine	LUPIN	---	---	---	---	---	X	---
Other perennial forbs	PPFF	5-10	2-10	2-5	5-15	---	X	X
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Snowberry	SYMPH	---	2-5	2-5	2-10	---	X	---
Common chokecherry	PRVI	---	2-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	5-15	2-5	---	---	---
Mountain big sagebrush	ARTRV	---	---	5-10	---	---	---	---
Other shrubs	SSSS	1-8	2-10	2-5	2-10	---	X	X
Quaking aspen	POTR5	---	5-10	---	---	---	X	X

Range site number	O25X024N	O25X002N	O25X016N	O25X004N	O25X028N	O25X065N	O25X064N
Potential production (lb/acre):							
Favorable years	350	800	2,000	2,600	1,000	800	1,600
Normal years	250	500	1,400	1,800	800	600	1,300
Unfavorable years	150	300	1,000	1,400	500	400	1,000

570.--Sumine-Hapgood-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Hapgood	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	2-5	2-5	---	---	15-30
Basin wildrye	ELCI2	5-10	---	---	---	5-15	30-50	2-10
Idaho fescue	FEID	2-5	2-10	10-30	2-10	---	15-30	15-40
Nevada bluegrass	PONE3	2-5	2-5	---	2-5	40-60	---	2-5
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	1-10
Mountain brome	BRMA4	---	5-15	---	5-15	---	5-15	---
Slender wheatgrass	AGTR	---	5-15	---	5-15	---	---	---
Spike-fescue	HEKI	---	2-10	---	2-10	---	---	---
Letterman needlegrass	STLE4	---	2-5	---	2-5	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Alpine timothy	PHAL2	---	---	---	---	20-40	---	---
Sedge	CAREX	---	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	---	5-15	---	---
Meadow barley	HOBR2	---	---	---	---	2-5	---	---
Big bluegrass	POAM	---	---	---	---	---	5-10	---
Bulbous oniongrass	MEBU	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	5-15	2-8	5-15	2-8	5-15	5-10
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	5-10
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---	1-5
Geranium	GERAN	---	2-10	---	2-10	---	---	---
Groundsel	SENEC	---	2-10	---	2-10	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-15	5-10	5-15	2-10	10-20	5-15
Antelope bitterbrush	PUTR2	2-15	2-5	---	2-5	---	---	5-15
Mountain big sagebrush	ARTRV	5-10	---	---	---	---	2-5	10-15
Snowberry	SYMPH	---	2-10	---	2-10	---	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Other shrubs	SSSS	2-10	2-10	1-8	2-10	2-5	2-10	5-15
Range site number		O25X009N	O25X004N	O25X024N	O25X004N	O25X006N	O25X029N	O25X012N
Potential production (lb/acre):								
Favorable years		1,300	2,600	350	2,600	1,600	2,000	1,200
Normal years		900	1,800	250	1,800	1,300	1,700	900
Unfavorable years		700	1,400	150	1,400	800	1,300	600

571.--Sumine-Tusel-Gando association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Tusel	Gando	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	5-10	2-5	---	---	---	---
Basin wildrye	ELCI2	5-10	---	---	---	---	---	50-60
Idaho fescue	FEID	2-5	30-60	10-30	---	X	---	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	---	---	5-15
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	---
Mountain brome	BRMA4	---	2-5	---	---	X	---	---
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	X	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Slender wheatgrass	AGTR	---	---	---	---	X	---	---
Streambank wheatgrass	AGRI	---	---	---	---	---	X	---
Tufted hairgrass	DECA5	---	---	---	---	---	X	---
Sedge	CAREX	---	---	---	---	---	X	1-5
Rush	JUNCU	---	---	---	---	---	X	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-10	2-10	2-8	---	X	X	15-20
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---	---
Hawksbeard	CREPI	---	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	---	X	---	---
Geranium	GERAN	---	---	---	---	X	---	---
Lupine	LUPIN	---	---	---	---	X	---	---
Other perennial forbs	PPFF	2-5	2-5	5-10	---	X	X	5-10
Antelope bitterbrush	PUTR2	2-15	2-5	---	---	---	---	---
Mountain big sagebrush	ARTRV	5-10	2-5	---	---	---	---	---
Snowberry	SYMPH	---	2-5	---	---	X	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	2-5	1-8	---	X	X	2-5
Quaking aspen	POTR5	---	---	---	---	X	X	---
Range site number		O25X009N	O25X010N	O25X024N	None	O25X065N	O25X064N	O25X003N
Potential production (lb/acre):								
Favorable years		1,300	1,400	350	---	800	1,600	2,500
Normal years		900	1,000	250	---	600	1,300	1,900
Unfavorable years		700	700	150	---	400	1,000	1,200

572.--Sumine-Shivlum-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Shivlum	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	15-30	15-30	15-30	2-5	---
Basin wildrye	ELCI2	5-10	2-10	---	2-10	---	---	---
Idaho fescue	FEID	2-5	15-40	30-50	15-40	30-50	10-30	---
Nevada bluegrass	PONE3	2-5	2-5	---	2-5	---	---	---
Thurber needlegrass	STTH2	2-10	1-10	---	1-10	---	---	---
Bluegrass	POA++	---	---	2-10	---	2-10	5-15	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	2-5	2-5	---
Webber ricegrass	ORWE	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	5-10	5-15	5-10	5-15	2-8	---
Arrowleaf balsamroot	BASA3	2-5	5-10	---	5-10	---	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	---	1-5	---	2-5	---
Balsamroot	BALSA	---	---	2-5	---	2-5	---	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-15	5-20	5-15	5-20	5-10	---
Antelope bitterbrush	PUTR2	2-15	5-15	1-10	5-15	1-10	---	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	10-15	---	---	---
Low sagebrush	ARAR8	---	---	10-25	---	10-25	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	---	15-25	---
Other shrubs	SSSS	2-10	5-15	5-15	5-15	5-15	1-8	---
Range site number		O25X009N	O25X012N	O25X017N	O25X012N	O25X017N	O25X024N	None
Potential production (lb/acre):								
Favorable years		1,300	1,200	1,000	1,200	1,000	350	---
Normal years		900	900	700	900	700	250	---
Unfavorable years		700	600	400	600	400	150	---

573.--Sumine-Hackwood-Gando association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Hackwood	Gando	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	---	2-5	---	2-5	15-30	---
Basin wildrye	ELCI2	5-10	---	---	---	---	---	50-60
Idaho fescue	FEID	2-5	X	10-30	---	2-10	30-50	---
Nevada bluegrass	PONE3	2-5	---	---	---	2-5	---	5-15
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	---
Mountain brome	BRMA4	---	X	---	---	5-15	---	---
Slender wheatgrass	AGTR	---	X	---	---	5-15	---	---
Bluegrass	POA++	---	---	5-15	---	---	2-10	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	2-5	---
Spike-fescue	HEKI	---	---	---	---	2-10	---	---
Letterman needlegrass	STLE4	---	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	X	2-8	---	5-15	5-15	15-20
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---	---
Horsemint	MONAR	---	X	---	---	---	---	---
Geranium	GERAN	---	X	---	---	2-10	---	---
Lupine	LUPIN	---	X	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Groundsel	SENEC	---	---	---	---	2-10	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	X	5-10	---	5-15	5-20	5-10
Antelope bitterbrush	PUTR2	2-15	---	---	---	2-5	1-10	---
Mountain big sagebrush	ARTRV	5-10	---	---	---	---	---	---
Snowberry	SYMPH	---	X	---	---	2-10	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-25	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	X	1-8	---	---	2-10	5-15
Quaking aspen	POTR5	---	X	---	---	---	---	---
Range site number		O25X009N	O25X065N	O25X024N	None	O25X004N	O25X017N	O25X003N
Potential production (lb/acre):								
Favorable years		1,300	800	350	---	2,600	1,000	2,500
Normal years		900	600	250	---	1,800	700	1,900
Unfavorable years		700	400	150	---	1,400	400	1,200

574.--Sumine-Cleavage-Cleavage, very cobbly association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sumine	Cleavage	Cleavage, very cobbly	1	2	3
Bluebunch wheatgrass	AGSP	30-50	15-30	2-5	15-30	---	20-30
Basin wildrye	ELCI2	5-10	---	---	2-10	---	---
Idaho fescue	FEID	2-5	30-50	10-30	15-40	---	---
Nevada bluegrass	PONE3	2-5	---	---	2-5	---	2-10
Thurber needlegrass	STTH2	2-10	---	---	1-10	---	15-25
Bluegrass	POA++	---	2-10	5-15	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	2-5	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---
Other perennial grasses	PPGG	5-10	5-15	2-8	5-10	---	10-15
Arrowleaf balsamroot	BASA3	2-5	---	---	5-10	---	2-5
Tapertip hawksbeard	CRAC2	2-5	---	2-5	1-5	---	2-5
Balsamroot	BALSA	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Other perennial forbs	PPFF	2-5	5-20	5-10	5-15	---	2-5
Antelope bitterbrush	PUTR2	2-15	1-10	---	5-15	---	1-10
Mountain big sagebrush	ARTRV	5-10	---	---	10-15	---	---
Low sagebrush	ARAR8	---	10-25	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	5-15	1-8	5-15	---	5-10

Range site number	O25X009N	O25X017N	O25X024N	O25X012N	None	O25X014N
Potential production (lb/acre):						
Favorable years	1,300	1,000	350	1,200	---	1,000
Normal years	900	700	250	900	---	800
Unfavorable years	700	400	150	600	---	600

575.--Sumine-Hapgood-Hackwood association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sumine	Hapgood	Hackwood	1	2	3
Bluebunch wheatgrass	AGSP	30-50	2-5	---	---	15-25	15-30
Basin wildrye	ELCI2	5-10	---	---	---	2-5	2-10
Idaho fescue	FEID	2-5	2-10	X	---	15-30	15-40
Nevada bluegrass	PONE3	2-5	2-5	---	---	2-5	2-5
Thurber needlegrass	STTH2	2-10	---	---	---	2-5	1-10
Mountain brome	BRMA4	---	5-15	X	---	---	---
Slender wheatgrass	AGTR	---	5-15	X	---	---	---
Spike-fescue	HEKI	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	2-5	---	---	---	---
Other perennial grasses	PPGG	5-10	5-15	X	---	5-15	5-10
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	5-10
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	1-5
Geranium	GERAN	---	2-10	X	---	---	---
Groundsel	SENEC	---	2-10	---	---	---	---
Horsemint	MONAR	---	---	X	---	---	---
Lupine	LUPIN	---	---	X	---	---	---
Other perennial forbs	PPFF	2-5	5-15	X	---	10-20	5-15
Antelope bitterbrush	PUTR2	2-15	2-5	---	---	20-40	5-15
Mountain big sagebrush	ARTRV	5-10	---	---	---	2-10	10-15
Snowberry	SYMPH	---	2-10	X	---	2-5	---
Serviceberry	AMELA	---	---	---	---	2-5	---
Other shrubs	SSSS	2-10	2-10	X	---	2-8	5-15
Quaking aspen	POTR5	---	---	X	---	---	---
Range site number		O25X009N	O25X004N	O25X065N	None	O25X007N	O25X012N
Potential production (lb/acre):							
Favorable years		1,300	2,600	800	---	1,600	1,200
Normal years		900	1,800	600	---	1,300	900
Unfavorable years		700	1,400	400	---	800	600

576.--Sumine-Cleavage-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Cleavage	Hapgood	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	2-5	5-10	2-10	---	---
Basin wildrye	ELCI2	5-10	---	---	---	---	50-60	---
Idaho fescue	FEID	2-5	10-30	2-10	30-60	5-15	---	---
Nevada bluegrass	PONE3	2-5	---	2-5	2-5	---	5-15	---
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	---
Bluegrass	POA++	---	5-15	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Mountain brome	BRMA4	---	---	5-15	2-5	---	---	---
Slender wheatgrass	AGTR	---	---	5-15	---	---	---	---
Spike-fescue	HEKI	---	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	2-5	---	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-10	2-8	5-15	2-10	5-20	15-20	---
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	2-10	---	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---	---
Hawksbeard	CREPI	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	2-5	5-10	5-15	2-5	5-10	5-10	---
Antelope bitterbrush	PUTR2	2-15	---	2-5	2-5	2-10	---	---
Mountain big sagebrush	ARTRV	5-10	---	---	2-5	2-5	---	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Snowberry	SYMPH	---	---	2-10	2-5	2-10	---	---
Serviceberry	AMELA	---	---	---	---	25-45	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	2-10	1-8	2-10	2-5	2-5	2-5	---

Range site number	O25X009N	O25X024N	O25X004N	O25X010N	O25X046N	O25X003N	None
Potential production (lb/acre):							
Favorable years	1,300	350	2,600	1,400	1,800	2,500	---
Normal years	900	250	1,800	1,000	1,300	1,900	---
Unfavorable years	700	150	1,400	700	900	1,200	---

577.--Sumine-Tusel-Hapgood association, steep

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Tusel	Hapgood	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	2-5	15-30	5-15	---	40-80
Basin wildrye	ELCI2	5-10	---	---	2-10	10-20	50-60	2-5
Idaho fescue	FEID	2-5	2-10	2-10	15-40	5-15	---	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	2-5	2-5	5-15	---
Thurber needlegrass	STTH2	2-10	---	---	1-10	---	---	5-15
Mountain brome	BRMA4	---	5-15	5-15	---	10-20	---	---
Slender wheatgrass	AGTR	---	5-15	5-15	---	---	---	---
Spike-fescue	HEKI	---	2-10	2-10	---	2-5	---	---
Letterman needlegrass	STLE4	---	2-5	2-5	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	5-15	5-15	5-10	5-15	15-20	2-10
Arrowleaf balsamroot	BASA3	2-5	---	---	5-10	2-5	---	---
Tapertip hawksbeard	CRAC2	2-5	---	---	1-5	2-5	---	2-5
Geranium	GERAN	---	2-10	2-10	---	---	---	---
Groundsel	SENEC	---	2-10	2-10	---	---	---	---
Other perennial forbs	PPFF	2-5	5-15	5-15	5-15	2-5	5-10	2-10
Antelope bitterbrush	PUTR2	2-15	2-5	2-5	5-15	5-15	---	1-10
Mountain big sagebrush	ARTRV	5-10	---	---	10-15	5-10	---	---
Snowberry	SYMPH	---	2-10	2-10	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Big sagebrush	ARTR2	---	---	---	---	---	---	2-10
Other shrubs	SSSS	2-10	2-10	2-10	5-15	2-5	2-5	2-8
Range site number		O25X009N	O25X004N	O25X004N	O25X012N	O25X016N	O25X003N	O25X015N
Potential production (lb/acre):								
Favorable years		1,300	2,600	2,600	1,200	2,000	2,500	1,000
Normal years		900	1,800	1,800	900	1,400	1,900	700
Unfavorable years		700	1,400	1,400	600	1,000	1,200	500

578.--Sumine-Tusel-Hapgood association, very steep

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Tusel	Hapgood	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	5-10	2-5	2-5	15-30	---	5-15
Basin wildrye	ELCI2	5-10	---	---	---	---	---	10-20
Idaho fescue	FEID	2-5	30-60	2-10	10-30	30-50	---	5-15
Nevada bluegrass	PONE3	2-5	2-5	2-5	---	---	5-10	2-5
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	---
Mountain brome	BRMA4	---	2-5	5-15	---	---	---	10-20
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Slender wheatgrass	AGTR	---	---	5-15	---	---	---	---
Spike-fescue	HEKI	---	---	2-10	---	---	---	2-5
Letterman needlegrass	STLE4	---	---	2-5	---	---	---	2-5
Bluegrass	POA++	---	---	---	5-15	2-10	---	---
Webber ricegrass	ORWE	---	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	2-10	5-15	2-8	5-15	2-10	5-15
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	2-5	---	---	2-5	---	---	2-5
Hawksbeard	CREPI	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	2-10	---	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-5	5-15	5-10	5-20	10-20	2-5
Antelope bitterbrush	PUTR2	2-15	2-5	2-5	---	1-10	---	5-15
Mountain big sagebrush	ARTRV	5-10	2-5	---	---	---	---	5-10
Snowberry	SYMPH	---	2-5	2-10	---	---	---	2-5
Sagebrush (low or black)	ARTEM	---	---	---	15-25	---	---	---
Low sagebrush	ARAR8	---	---	---	---	10-25	---	---
Other shrubs	SSSS	2-10	2-5	2-10	1-8	5-15	2-5	2-5

Range site number	O25X009N	O25X010N	O25X004N	O25X024N	O25X017N	O25X005N	O25X016N
Potential production (lb/acre):							
Favorable years	1,300	1,400	2,600	350	1,000	2,000	2,000
Normal years	900	1,000	1,800	250	700	1,700	1,400
Unfavorable years	700	700	1,400	150	400	1,000	1,000

579.--Sumine-Pernty-Tusel association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sumine	Pernty	Tusel	1	2	3
Bluebunch wheatgrass	AGSP	30-50	2-10	2-5	2-5	---	2-5
Basin wildrye	ELCI2	5-10	---	---	---	---	---
Idaho fescue	FEID	2-5	5-15	2-10	10-30	---	2-10
Nevada bluegrass	PONE3	2-5	---	2-5	---	---	2-5
Thurber needlegrass	STTH2	2-10	---	---	---	---	---
Mountain brome	BRMA4	---	---	5-15	---	---	5-15
Slender wheatgrass	AGTR	---	---	5-15	---	---	5-15
Spike-fescue	HEKI	---	---	2-10	---	---	2-10
Letterman needlegrass	STLE4	---	---	2-5	---	---	2-5
Bluegrass	POA++	---	---	---	5-15	---	---
Webber ricegrass	ORWE	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-10	5-20	5-15	2-8	---	5-15
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	---	2-5	---	---
Geranium	GERAN	---	---	2-10	---	---	2-10
Groundsel	SENEC	---	---	2-10	---	---	2-10
Goldenweed	HAPLO2	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-10	5-15	5-10	---	5-15
Antelope bitterbrush	PUTR2	2-15	2-10	2-5	---	---	2-5
Mountain big sagebrush	ARTRV	5-10	2-5	---	---	---	---
Serviceberry	AMELA	---	25-45	---	---	---	---
Snowberry	SYMPH	---	2-10	2-10	---	---	2-10
Sagebrush (low or black)	ARTEM	---	---	---	15-25	---	---
Other shrubs	SSSS	2-10	2-5	2-10	1-8	---	2-10
Range site number		O25X009N	O25X046N	O25X004N	O25X024N	None	O25X004N
Potential production (lb/acre):							
Favorable years		1,300	1,800	2,600	350	---	2,600
Normal years		900	1,300	1,800	250	---	1,800
Unfavorable years		700	900	1,400	150	---	1,400

580.--Sumine-Cleavage-Pernty association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Cleavage	Pernty	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	15-30	15-30	15-25	30-50	---
Basin wildrye	ELCI2	5-10	---	2-10	2-10	2-5	5-10	50-60
Idaho fescue	FEID	2-5	10-30	15-40	15-40	15-30	2-5	---
Nevada bluegrass	PONE3	2-5	---	2-5	2-5	2-5	2-5	5-15
Thurber needlegrass	STTH2	2-10	---	1-10	1-10	2-5	2-10	---
Bluegrass	POA++	---	5-15	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	2-8	5-10	5-10	5-15	5-10	15-20
Arrowleaf balsamroot	BASA3	2-5	---	5-10	5-10	---	2-5	---
Tapertip hawksbeard	CRAC2	2-5	2-5	1-5	1-5	---	2-5	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Other perennial forbs	PPFF	2-5	5-10	5-15	5-15	10-20	2-5	5-10
Antelope bitterbrush	PUTR2	2-15	---	5-15	5-15	20-40	2-15	---
Mountain big sagebrush	ARTRV	5-10	---	10-15	10-15	2-10	5-10	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Snowberry	SYMPH	---	---	---	---	2-5	---	---
Serviceberry	AMELA	---	---	---	---	2-5	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	1-8	5-15	5-15	2-8	2-10	2-5
Range site number		O25X009N	O25X024N	O25X012N	O25X012N	O25X007N	O25X009N	O25X003N
Potential production (lb/acre):								
Favorable years		1,300	350	1,200	1,200	1,600	1,300	2,500
Normal years		900	250	900	900	1,300	900	1,900
Unfavorable years		700	150	600	600	800	700	1,200

582.--Sumine-Vitale-Bullvaro association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Vitale	Bullvaro	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	15-30	---	---	---	X
Basin wildrye	ELCI2	5-10	2-10	---	---	---	---	---
Idaho fescue	FEID	2-5	15-40	30-50	---	---	---	X
Nevada bluegrass	PONE3	2-5	2-5	---	---	---	---	---
Thurber needlegrass	STTH2	2-10	1-10	---	---	---	---	---
Bluegrass	POA++	---	---	2-10	---	---	X	X
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Streambank wheatgrass	AGRI	---	---	---	---	---	X	---
Tufted hairgrass	DECA5	---	---	---	---	---	X	---
Sedge	CAREX	---	---	---	---	---	X	---
Rush	JUNCU	---	---	---	---	---	X	---
Other perennial grasses	PPGG	5-10	5-10	5-15	---	---	X	X
Arrowleaf balsamroot	BASA3	2-5	5-10	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	---	---	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-5	5-15	5-20	---	---	X	X
Antelope bitterbrush	PUTR2	2-15	5-15	1-10	---	---	---	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	---	---	---	---
Low sagebrush	ARAR8	---	---	10-25	---	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	---	X
Other shrubs	SSSS	2-10	5-15	5-15	---	---	X	X
Quaking aspen	POTR5	---	---	---	---	---	X	---
Rocky Mountain juniper	JUSC2	---	---	---	---	---	---	X
Range site number		O25X009N	O25X012N	O25X017N	None	None	O25X064N	O25X068N
Potential production (lb/acre):								
Favorable years		1,300	1,200	1,000	---	---	1,600	250
Normal years		900	900	700	---	---	1,300	175
Unfavorable years		700	600	400	---	---	1,000	100

583.--Sumine-Cleavage-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Cleavage	Rock outcrop	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	---	2-5	2-10	---	---
Basin wildrye	ELCI2	5-10	---	---	---	---	---	50-60
Idaho fescue	FEID	2-5	10-30	---	2-10	5-15	---	---
Nevada bluegrass	PONE3	2-5	---	---	2-5	---	5-10	5-15
Thurber needlegrass	STTH2	2-10	---	---	---	---	---	---
Bluegrass	POA++	---	5-15	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Mountain brome	BRMA4	---	---	---	5-15	---	---	---
Slender wheatgrass	AGTR	---	---	---	5-15	---	---	---
Spike-fescue	HEKI	---	---	---	2-10	---	---	---
Letterman needlegrass	STLE4	---	---	---	2-5	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	1-5
Mat muhly	MURI	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-10	2-8	---	5-15	5-20	2-10	15-20
Arrowleaf balsamroot	BASA3	2-5	---	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	---	2-10	---	---	---
Groundsel	SENEC	---	---	---	2-10	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-10	---	5-15	5-10	10-20	5-10
Antelope bitterbrush	PUTR2	2-15	---	---	2-5	2-10	---	---
Mountain big sagebrush	ARTRV	5-10	---	---	---	2-5	---	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Snowberry	SYMPH	---	---	---	2-10	2-10	---	---
Serviceberry	AMELA	---	---	---	---	25-45	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	1-8	---	2-10	2-5	2-5	2-5
Range site number		O25X009N	O25X024N	None	O25X004N	O25X046N	O25X005N	O25X003N
Potential production (lb/acre):								
Favorable years		1,300	350	---	2,600	1,800	2,000	2,500
Normal years		900	250	---	1,800	1,300	1,700	1,900
Unfavorable years		700	150	---	1,400	900	1,000	1,200

584.--Sumine-Pernty-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Pernty	Hapgood	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	2-5	2-5	15-30	---	---
Basin wildrye	ELCI2	5-10	2-10	---	---	2-10	---	---
Idaho fescue	FEID	2-5	15-40	2-10	10-30	15-40	---	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	---	2-5	5-10	---
Thurber needlegrass	STTH2	2-10	1-10	---	---	1-10	---	---
Mountain brome	BRMA4	---	---	5-15	---	---	---	---
Slender wheatgrass	AGTR	---	---	5-15	---	---	---	---
Spike-fescue	HEKI	---	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	2-5	---	---	---	---
Bluegrass	POA++	---	---	---	5-15	---	---	---
Webber ricegrass	ORWE	---	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-10	5-10	5-15	2-8	5-10	2-10	---
Arrowleaf balsamroot	BASA3	2-5	5-10	---	---	5-10	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	---	2-5	1-5	---	---
Geranium	GERAN	---	---	2-10	---	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---	---
Goldenweed	HAPLO2	---	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-15	5-15	5-10	5-15	10-20	---
Antelope bitterbrush	PUTR2	2-15	5-15	2-5	---	5-15	---	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	---	10-15	---	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	15-25	---	---	---
Other shrubs	SSSS	2-10	5-15	2-10	1-8	5-15	2-5	---
Range site number		O25X009N	O25X012N	O25X004N	O25X024N	O25X012N	O25X005N	None
Potential production (lb/acre):								
Favorable years		1,300	1,200	2,600	350	1,200	2,000	---
Normal years		900	900	1,800	250	900	1,700	---
Unfavorable years		700	600	1,400	150	600	1,000	---

585.--Sumine-Pernty-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Sumine	Pernty	McIvey	1	2	3
Bluebunch wheatgrass	AGSP	30-50	15-30	15-30	30-50	15-30	---
Basin wildrye	ELCI2	5-10	2-10	2-10	5-10	2-10	---
Idaho fescue	FEID	2-5	15-40	15-40	2-5	15-40	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	2-5	2-5	---
Thurber needlegrass	STTH2	2-10	1-10	1-10	2-10	1-10	---
Other perennial grasses	PPGG	5-10	5-10	5-10	5-10	5-10	---
Arrowleaf balsamroot	BASA3	2-5	5-10	5-10	2-5	5-10	---
Tapertip hawksbeard	CRAC2	2-5	1-5	1-5	2-5	1-5	---
Other perennial forbs	PPFF	2-5	5-15	5-15	2-5	5-15	---
Antelope bitterbrush	PUTR2	2-15	5-15	5-15	2-15	5-15	---
Mountain big sagebrush	ARTRV	5-10	10-15	10-15	5-10	10-15	---
Other shrubs	SSSS	2-10	5-15	5-15	2-10	5-15	---
Range site number		O25X009N	O25X012N	O25X012N	O25X009N	O25X012N	None
Potential production (lb/acre):							
Favorable years		1,300	1,200	1,200	1,300	1,200	---
Normal years		900	900	900	900	900	---
Unfavorable years		700	600	600	700	600	---

586.--Sumine-Loncan-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Loncan	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	2-5	30-50	15-30	15-30	---
Basin wildrye	ELCI2	5-10	2-10	---	5-10	2-10	---	---
Idaho fescue	FEID	2-5	15-40	10-30	2-5	15-40	30-50	---
Nevada bluegrass	PONE3	2-5	2-5	---	2-5	2-5	---	---
Thurber needlegrass	STTH2	2-10	1-10	---	2-10	1-10	---	---
Bluegrass	POA++	---	---	5-15	---	---	2-10	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-10	2-8	5-10	5-10	5-15	---
Arrowleaf balsamroot	BASA3	2-5	5-10	---	2-5	5-10	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	2-5	2-5	1-5	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-15	5-10	2-5	5-15	5-20	---
Antelope bitterbrush	PUTR2	2-15	5-15	---	2-15	5-15	1-10	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	5-10	10-15	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-25	---
Other shrubs	SSSS	2-10	5-15	1-8	2-10	5-15	5-15	---
Range site number		O25X009N	O25X012N	O25X024N	O25X009N	O25X012N	O25X017N	None
Potential production (lb/acre):								
Favorable years		1,300	1,200	350	1,300	1,200	1,000	---
Normal years		900	900	250	900	900	700	---
Unfavorable years		700	600	150	700	600	400	---

587.--Sumine-Bullvaro-Hackwood association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Sumine	Bullvaro	Hackwood	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	---	10-20	---	---	---
Basin wildrye	ELCI2	5-10	---	---	---	---	---	---
Idaho fescue	FEID	2-5	30-50	X	---	---	---	---
Nevada bluegrass	PONE3	2-5	---	---	---	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	10-15	---	---	---
Bluegrass	POA++	---	2-10	---	---	X	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	2-5	---	---	---
Mountain brome	BRMA4	---	---	X	---	---	---	---
Slender wheatgrass	AGTR	---	---	X	---	---	---	---
Pine bluegrass	POSC	---	---	---	5-10	---	---	---
Indian ricegrass	ORHY	---	---	---	2-5	---	---	---
Streambank wheatgrass	AGRI	---	---	---	---	X	---	---
Tufted hairgrass	DECA5	---	---	---	---	X	---	---
Sedge	CAREX	---	---	---	---	X	---	---
Rush	JUNCU	---	---	---	---	X	---	---
Other perennial grasses	PPGG	5-10	5-15	X	1-5	X	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Horsemint	MONAR	---	---	X	---	---	---	---
Geranium	GERAN	---	---	X	---	---	---	---
Lupine	LUPIN	---	---	X	---	---	---	---
Other perennial forbs	PPFF	2-5	5-20	X	10-20	X	---	---
Antelope bitterbrush	PUTR2	2-15	1-10	---	---	---	---	---
Mountain big sagebrush	ARTRV	5-10	---	---	1-5	---	---	---
Low sagebrush	ARAR8	---	10-25	---	---	---	---	---
Snowberry	SYMPH	---	---	X	1-5	---	---	---
Curlleaf mountainmahogany	CELE3	---	---	---	5-10	---	---	---
Other shrubs	SSSS	2-10	5-15	X	5-10	X	---	---
Quaking aspen	POTR5	---	---	X	---	X	---	---
Range site number		O25X009N	O25X017N	O25X065N	O28B042N	O25X064N	None	None
Potential production (lb/acre):								
Favorable years		1,300	1,000	800	900	1,600	---	---
Normal years		900	700	600	600	1,300	---	---
Unfavorable years		700	400	400	400	1,000	---	---

590.--Bucan-Kelk-Orovada association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bucan	Kelk	Orovada	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	30-50	15-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	2-10	---	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-10	2-5	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	---	---	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	---	---	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	2-10	---
Idaho fescue	FEID	---	---	---	2-5	20-40	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---	---
Other perennial grasses	PPGG	2-15	2-15	2-15	5-10	2-10	2-15	---
Globemallow	SPHAE	2-5	2-5	2-5	---	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	2-10	2-10	---
Big sagebrush	ARTR2	10-15	10-15	10-15	---	5-15	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	2-15	1-5	---	---
Mountain big sagebrush	ARTRV	---	---	---	5-10	---	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	5-15	2-10	---	5-15	---
Range site number		O25X019N	O25X019N	O25X019N	O25X009N	O25X027N	O25X019N	None
Potential production (lb/acre):								
Favorable years		800	800	800	1,300	1,300	800	---
Normal years		600	600	600	900	900	600	---
Unfavorable years		400	400	400	700	600	400	---

591.--Bucan-Vanwyper-Akler association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Bucan	Vanwyper	Akler	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	15-40	15-30	---
Thurber needlegrass	STTH2	10-40	10-40	15-40	1-10	---
Basin wildrye	ELCI2	5-15	5-15	---	2-10	---
Indian ricegrass	ORHY	2-10	2-10	---	---	---
Webber ricegrass	ORWE	2-10	2-10	5-15	---	---
Bluegrass	POA++	2-10	2-10	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---
Idaho fescue	FEID	---	---	---	15-40	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Other perennial grasses	PPGG	2-15	2-15	1-10	5-10	---
Globemallow	SPHAE	2-5	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	---	5-10	---
Tapertip hawksbeard	CRAC2	---	---	---	1-5	---
Other perennial forbs	PPFF	2-10	2-10	5-10	5-15	---
Big sagebrush	ARTR2	10-15	10-15	---	---	---
Low sagebrush	ARAR8	---	---	15-25	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Antelope bitterbrush	PUTR2	---	---	---	5-15	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	---
Range site number		O25X019N	O25X019N	O25X018N	O25X012N	None
Potential production (lb/acre):						
Favorable years		800	800	800	1,200	---
Normal years		600	600	600	900	---
Unfavorable years		400	400	400	600	---

600.--Hapgood-Bullump-Gando association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Hapgood	Bullump	Gando	1	2	3	4
Mountain brome	BRMA4	5-15	10-20	---	X	---	---	---
Slender wheatgrass	AGTR	5-15	---	---	X	---	---	---
Idaho fescue	FEID	2-10	5-15	10-30	X	---	---	---
Spike-fescue	HEKI	2-10	2-5	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	5-15	2-5	---	---	---	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	5-10	---	---
Letterman needlegrass	STLE4	2-5	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	10-20	---	---	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	X	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	X	---
Alpine timothy	PHAL2	---	---	---	---	5-10	---	---
Sedge	CAREX	---	---	---	---	5-10	X	---
Streambank wheatgrass	AGRI	---	---	---	---	---	X	---
Rush	JUNCU	---	---	---	---	---	X	---
Other perennial grasses	PPGG	5-15	5-15	2-8	X	2-10	X	---
Geranium	GERAN	2-10	---	---	X	---	---	---
Groundsel	SENEC	2-10	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	X	---	---	---
Lupine	LUPIN	---	---	---	X	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	5-15	2-5	5-10	X	10-20	X	---
Snowberry	SYMPH	2-10	2-5	---	X	---	---	---
Antelope bitterbrush	PUTR2	2-5	5-15	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Other shrubs	SSSS	2-10	2-5	1-8	X	2-5	X	---
Quaking aspen	POTR5	---	---	---	X	---	X	---

Range site number	O25X004N	O25X016N	O25X024N	O25X065N	O25X005N	O25X064N	None
Potential production (lb/acre):							
Favorable years	2,600	2,000	350	800	2,000	1,600	---
Normal years	1,800	1,400	250	600	1,700	1,300	---
Unfavorable years	1,400	1,000	150	400	1,000	1,000	---

620.--Soughe, eroded-Soughe association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Soughe, eroded	Soughe	1	2	3	4
Bluebunch wheatgrass	AGSP	X	40-80	---	10-40	10-40	---
Thurber needlegrass	STTH2	X	5-15	---	10-40	10-40	---
Indian ricegrass	ORHY	X	2-5	---	2-10	2-10	---
Bluegrass	POA++	X	---	---	2-10	2-10	---
Basin wildrye	ELCI2	---	2-5	---	5-15	5-15	---
Webber ricegrass	ORWE	---	---	---	2-10	2-10	---
Other perennial grasses	PPGG	X	2-10	---	2-15	2-15	---
Tapertip hawksbeard	CRAC2	X	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	X	---	---	---	---	---
Globemallow	SPHAE	---	---	---	2-5	2-5	---
Other perennial forbs	PPFF	X	2-10	---	2-10	2-10	---
Big sagebrush	ARTR2	X	2-10	---	10-15	10-15	---
Antelope bitterbrush	PUTR2	X	1-10	---	---	---	---
Other shrubs	SSSS	X	2-8	---	5-15	5-15	---
Utah juniper	JUOS	X	---	---	---	---	---
Range site number		O25X059N	O25X015N	None	O25X019N	O25X019N	None
Potential production (lb/acre):							
Favorable years		500	1,000	---	800	800	---
Normal years		350	700	---	600	600	---
Unfavorable years		200	500	---	400	400	---

630.--Cowgil Variant-Soughe association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Cowgil Variant	Soughe	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	X	10-40	---	---	---
Thurber needlegrass	STTH2	10-40	X	10-40	---	---	---
Basin wildrye	ELCI2	5-15	---	5-15	---	---	---
Indian ricegrass	ORHY	2-10	X	2-10	---	---	---
Webber ricegrass	ORWE	2-10	---	2-10	---	---	---
Bluegrass	POA++	2-10	X	2-10	---	---	---
Wildrye	ELYMU	---	---	---	---	30-60	---
Nevada bluegrass	PONE3	---	---	---	---	5-10	---
Inland saltgrass	DIST	---	---	---	---	5-10	---
Mat muhly	MURI	---	---	---	---	2-10	---
Other perennial grasses	PPGG	2-15	X	2-15	---	5-15	---
Globemallow	SPHAE	2-5	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	X	---	---	---	---
Arrowleaf balsamroot	BASA3	---	X	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	X	2-10	---	5-10	---
Big sagebrush	ARTR2	10-15	X	10-15	---	---	---
Antelope bitterbrush	PUTR2	---	X	---	---	---	---
Willow	SALIX	---	---	---	---	5-10	---
Basin big sagebrush	ARTRT*	---	---	---	---	2-5	---
Silver sagebrush	ARCA13	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	X	5-15	---	2-8	---
Utah juniper	JUOS	---	X	---	---	---	---
Range site number		O25X019N	O25X059N	O25X019N	None	O25X001N	None
Potential production (lb/acre):							
Favorable years		800	500	800	---	3,000	---
Normal years		600	350	600	---	2,500	---
Unfavorable years		400	200	400	---	1,800	---

631.--Hunewill-Bilbo-Devilsgait association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Hunewill	Bilbo	Devilsgait	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	50-60	5-15	5-15	40-60
Indian ricegrass	ORHY	2-10	2-10	---	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	5-15	---	---	---
Mat muhly	MURI	---	---	2-10	---	---	---
Sedge	CAREX	---	---	1-5	---	---	---
Alkali sacaton	SPAI	---	---	---	---	---	15-30
Inland saltgrass	DIST	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	15-20	2-15	2-15	2-8
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-10	2-10	2-10	2-8
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	---
Basin big sagebrush	ARTRT*	---	---	10-15	---	---	---
Black greasewood	SAVE4	---	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	2-5	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X003N	O25X019N	O25X019N	O24X007N
Potential production (lb/acre):							
Favorable years		800	800	2,500	800	800	1,900
Normal years		600	600	1,900	600	600	1,400
Unfavorable years		400	400	1,200	400	400	800

632.--Hunewill-Kelk-Devilsgait association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hunewill	Kelk	Devilsgait	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	---	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	---	10-40
Basin wildrye	ELCI2	5-15	5-15	50-60	40-60	5-15
Indian ricegrass	ORHY	2-10	2-10	---	---	2-10
Webber ricegrass	ORWE	2-10	2-10	---	---	2-10
Bluegrass	POA++	2-10	2-10	---	---	2-10
Nevada bluegrass	PONE3	---	---	5-15	---	---
Mat muhly	MURI	---	---	2-10	---	---
Sedge	CAREX	---	---	1-5	---	---
Alkali sacaton	SPAI	---	---	---	15-30	---
Inland saltgrass	DIST	---	---	---	5-10	---
Other perennial grasses	PPGG	2-15	2-15	15-20	2-8	2-15
Globemallow	SPHAE	2-5	2-5	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	5-10	2-8	2-10
Big sagebrush	ARTR2	10-15	10-15	---	---	10-15
Basin big sagebrush	ARTRT*	---	---	10-15	---	---
Black greasewood	SAVE4	---	---	---	5-15	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	2-5	2-5	5-15
Range site number		O25X019N	O25X019N	O25X003N	O24X007N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	2,500	1,900	800
Normal years		600	600	1,900	1,400	600
Unfavorable years		400	400	1,200	800	400

633.--Hunewill, strongly sloping-Kelk-Hunewill association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hunewill, strongly sloping	Kelk	Hunewill	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	---	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	---	10-40
Basin wildrye	ELCI2	5-15	5-15	---	---	5-15
Indian ricegrass	ORHY	2-10	2-10	10-20	10-30	2-10
Webber ricegrass	ORWE	2-10	2-10	---	---	2-10
Bluegrass	POA++	2-10	2-10	---	---	2-10
Needleandthread	STCO4	---	---	20-30	---	---
Thickspike wheatgrass	AGDA	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	5-10	---
Other perennial grasses	PPGG	2-15	2-15	2-5	10-20	2-15
Globemallow	SPHAE	2-5	2-5	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	10-20	5-15	2-10
Big sagebrush	ARTR2	10-15	10-15	10-20	---	10-15
Spiny hopsage	GRSP	---	---	1-5	1-5	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---
Antelope bitterbrush	PUTR2	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	5-15	---
Purple sage	SACA9	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---
Other shrubs	SSSS	5-15	5-15	2-10	2-4	5-15
Range site number		O25X019N	O25X019N	O24X017N	O25X025N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	900	200	800
Normal years		600	600	700	150	600
Unfavorable years		400	400	500	100	400

640.--Arcia-Tusel-Hackwood association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Arcia	Tusel	Hackwood	1	2	3
Idaho fescue	FEID	15-40	30-60	X	30-50	---	---
Bluebunch wheatgrass	AGSP	15-30	5-10	---	15-30	---	---
Basin wildrye	ELCI2	2-10	---	---	---	50-60	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	5-15	---
Thurber needlegrass	STTH2	1-10	---	---	---	---	---
Mountain brome	BRMA4	---	2-5	X	---	---	---
Cusick bluegrass	POCU3	---	2-5	---	---	---	---
Slender wheatgrass	AGTR	---	---	X	---	---	---
Bluegrass	POA++	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-10	2-10	X	5-15	15-20	---
Arrowleaf balsamroot	BASA3	5-10	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	---	---	---
Hawksbeard	CREPI	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	X	---	---	---
Geranium	GERAN	---	---	X	---	---	---
Lupine	LUPIN	---	---	X	---	---	---
Balsamroot	BALSA	---	---	---	2-5	---	---
Other perennial forbs	PPFF	5-15	2-5	X	5-20	5-10	---
Mountain big sagebrush	ARTRV	10-15	2-5	---	---	---	---
Antelope bitterbrush	PUTR2	5-15	2-5	---	1-10	---	---
Snowberry	SYMPH	---	2-5	X	---	---	---
Low sagebrush	ARAR8	---	---	---	10-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	2-5	X	5-15	2-5	---
Quaking aspen	POTR5	---	---	X	---	---	---

Range site number	O25X012N	O25X010N	O25X065N	O25X017N	O25X003N	None
Potential production (lb/acre):						
Favorable years	1,200	1,400	800	1,000	2,500	---
Normal years	900	1,000	600	700	1,900	---
Unfavorable years	600	700	400	400	1,200	---

650.--Karpp-Chiara-Rad association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Karpp	Chiara	Rad	1	2
Bluebunch wheatgrass	AGSP	X	10-40	10-40	X	10-40
Thurber needlegrass	STTH2	X	10-40	10-40	X	10-40
Indian ricegrass	ORHY	X	2-10	2-10	X	2-10
Bluegrass	POA++	X	2-10	2-10	X	2-10
Basin wildrye	ELCI2	---	5-15	5-15	---	5-15
Webber ricegrass	ORWE	---	2-10	2-10	---	2-10
Other perennial grasses	PPGG	X	2-15	2-15	X	2-15
Tapertip hawksbeard	CRAC2	X	---	---	X	---
Arrowleaf balsamroot	BASA3	X	---	---	X	---
Globemallow	SPHAE	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	X	2-10	2-10	X	2-10
Big sagebrush	ARTR2	X	10-15	10-15	X	10-15
Antelope bitterbrush	PUTR2	X	---	---	X	---
Other shrubs	SSSS	X	5-15	5-15	X	5-15
Utah juniper	JUOS	X	---	---	X	---
Range site number		O25X059N	O25X019N	O25X019N	O25X059N	O25X019N
Potential production (lb/acre):						
Favorable years		500	800	800	500	800
Normal years		350	600	600	350	600
Unfavorable years		200	400	400	200	400

651.--Karpp-Chiara-Wieland association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Karpp	Chiara	Wieland	1	2
Bluebunch wheatgrass	AGSP	X	10-40	10-40	15-30	10-40
Thurber needlegrass	STTH2	X	10-40	10-40	1-10	10-40
Indian ricegrass	ORHY	X	2-10	2-10	---	2-10
Bluegrass	POA++	X	2-10	2-10	---	2-10
Basin wildrye	ELCI2	---	5-15	5-15	2-10	5-15
Webber ricegrass	ORWE	---	2-10	2-10	---	2-10
Idaho fescue	FEID	---	---	---	15-40	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Other perennial grasses	PPGG	X	2-15	2-15	5-10	2-15
Tapertip hawksbeard	CRAC2	X	---	---	1-5	---
Arrowleaf balsamroot	BASA3	X	---	---	5-10	---
Globemallow	SPHAE	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	X	2-10	2-10	5-15	2-10
Big sagebrush	ARTR2	X	10-15	10-15	---	10-15
Antelope bitterbrush	PUTR2	X	---	---	5-15	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Other shrubs	SSSS	X	5-15	5-15	5-15	5-15
Utah juniper	JUOS	X	---	---	---	---
Range site number		O25X059N	O25X019N	O25X019N	O25X012N	O25X019N
Potential production (lb/acre):						
Favorable years		500	800	800	1,200	800
Normal years		350	600	600	900	600
Unfavorable years		200	400	400	600	400

660.--Ichbod-Akler association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Ichbod	Akler	1	2	3
Bluebunch wheatgrass	AGSP	20-30	15-40	X	15-30	---
Thurber needlegrass	STTH2	15-25	15-40	X	1-10	---
Nevada bluegrass	PONE3	2-10	---	---	2-5	---
Webber ricegrass	ORWE	---	5-15	---	---	---
Bluegrass	POA++	---	5-10	X	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---
Indian ricegrass	ORHY	---	---	X	---	---
Idaho fescue	FEID	---	---	---	15-40	---
Basin wildrye	ELCI2	---	---	---	2-10	---
Other perennial grasses	PPGG	10-15	1-10	X	5-10	---
Tapertip hawksbeard	CRAC2	2-5	---	X	1-5	---
Arrowleaf balsamroot	BASA3	2-5	---	X	5-10	---
Balsamroot	BALSA	---	2-5	---	---	---
Other perennial forbs	PPFF	2-5	5-10	X	5-15	---
Big sagebrush	ARTR2	10-15	---	X	---	---
Antelope bitterbrush	PUTR2	1-10	---	X	5-15	---
Low sagebrush	ARAR8	---	15-25	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Other shrubs	SSSS	5-10	5-15	X	5-15	---
Utah juniper	JUOS	---	---	X	---	---

Range site number	O25X014N	O25X018N	O25X059N	O25X012N	None
Potential production (lb/acre):					
Favorable years	1,000	800	500	1,200	---
Normal years	800	600	350	900	---
Unfavorable years	600	400	200	600	---

690.--Welch, drained-Welch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Welch, drained	Welch	1	2
Basin wildrye	ELCI2	50-60	---	5-15	50-60
Nevada bluegrass	PONE3	5-15	5-10	40-60	5-15
Mat muhly	MURI	2-10	---	5-15	2-10
Sedge	CAREX	1-5	5-10	5-15	1-5
Tufted hairgrass	DECA5	---	30-60	---	---
Alpine timothy	PHAL2	---	5-10	20-40	---
Meadow barley	HOBR2	---	---	2-5	---
Other perennial grasses	PPGG	15-20	2-10	2-8	15-20
Sierra clover	TRWO	---	2-5	---	---
Cinquefoil	POTEN	---	2-5	2-5	---
Other perennial forbs	PPFF	5-10	10-20	2-10	5-10
Basin big sagebrush	ARTRT*	10-15	---	---	10-15
Other shrubs	SSSS	2-5	2-5	2-5	2-5
Range site number		O25X003N	O25X005N	O25X006N	O25X003N
Potential production (lb/acre):					
Favorable years		2,500	2,000	1,600	2,500
Normal years		1,900	1,700	1,300	1,900
Unfavorable years		1,200	1,000	800	1,200

693.--Welch-Woofus association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Welch	Woofus	1	2	3
Basin wildrye	ELCI2	50-60	---	---	50-60	---
Nevada bluegrass	PONE3	5-15	5-10	5-10	---	5-10
Mat muhly	MURI	2-10	2-10	2-10	---	2-10
Sedge	CAREX	1-5	---	---	---	---
Wildrye	ELYMU	---	30-60	30-60	---	30-60
Inland saltgrass	DIST	---	5-10	5-10	---	5-10
Western wheatgrass	AGSM	---	---	---	5-15	---
Other perennial grasses	PPGG	15-20	5-15	5-15	5-20	5-15
Sierra clover	TRWO	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	5-10	5-10	5-10	2-8	5-10
Basin big sagebrush	ARTRT*	10-15	2-5	2-5	15-20	2-5
Willow	SALIX	---	5-10	5-10	---	5-10
Silver sagebrush	ARCA13	---	2-5	2-5	---	2-5
Black greasewood	SAVE4	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	2-5	---
Other shrubs	SSSS	2-5	2-8	2-8	1-4	2-8
Range site number		O25X003N	O25X001N	O25X001N	O24X006N	O25X001N
Potential production (lb/acre):						
Favorable years		2,500	3,000	3,000	1,500	3,000
Normal years		1,900	2,500	2,500	1,100	2,500
Unfavorable years		1,200	1,800	1,800	600	1,800

695.--Welch-Crooked Creek-Welch, occasionally flooded association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Welch	Crooked Creek	Welch, occasionally flooded	1	2	3
Tufted hairgrass	DECA5	30-60	30-60	---	---	---	30-60
Nevada bluegrass	PONE3	5-10	5-10	40-60	40-60	5-15	5-10
Alpine timothy	PHAL2	5-10	5-10	20-40	20-40	---	5-10
Sedge	CAREX	5-10	5-10	5-15	5-15	1-5	5-10
Mat muhly	MURI	---	---	5-15	5-15	2-10	---
Basin wildrye	ELCI2	---	---	5-15	5-15	50-60	---
Meadow barley	HOBR2	---	---	2-5	2-5	---	---
Other perennial grasses	PPGG	2-10	2-10	2-8	2-8	15-20	2-10
Sierra clover	TRWO	2-5	2-5	---	---	---	2-5
Cinquefoil	POTEN	2-5	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	10-20	10-20	2-10	2-10	5-10	10-20
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5	2-5
Range site number		O25X005N	O25X005N	O25X006N	O25X006N	O25X003N	O25X005N
Potential production (lb/acre):							
Favorable years		2,000	2,000	1,600	1,600	2,500	2,000
Normal years		1,700	1,700	1,300	1,300	1,900	1,700
Unfavorable years		1,000	1,000	800	800	1,200	1,000

698.--Halleck, occasionally flooded-Halleck-Crooked Creek association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Halleck, occasionally flooded	Halleck	Crooked Creek	1	2
Nevada bluegrass	PONE3	40-60	5-10	5-10	5-10	5-15
Alpine timothy	PHAL2	20-40	5-10	5-10	5-10	---
Sedge	CAREX	5-15	5-10	5-10	5-10	1-5
Mat muhly	MURI	5-15	---	---	---	2-10
Basin wildrye	ELCI2	5-15	---	---	---	50-60
Meadow barley	HOBR2	2-5	---	---	---	---
Tufted hairgrass	DECA5	---	30-60	30-60	30-60	---
Other perennial grasses	PPGG	2-8	2-10	2-10	2-10	15-20
Cinquefoil	POTEN	2-5	2-5	2-5	2-5	---
Sierra clover	TRWO	---	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	10-20	10-20	10-20	5-10
Basin big sagebrush	ARTRT*	---	---	---	---	10-15
Other shrubs	SSSS	2-5	2-5	2-5	2-5	2-5
Range site number		O25X006N	O25X005N	O25X005N	O25X005N	O25X003N
Potential production (lb/acre):						
Favorable years		1,600	2,000	2,000	2,000	2,500
Normal years		1,300	1,700	1,700	1,700	1,900
Unfavorable years		800	1,000	1,000	1,000	1,200

700.--Leevan-Cleavage-Arcia association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Leevan	Cleavage	Arcia	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	2-5	15-30	---	---	5-10	30-50
Idaho fescue	FEID	30-50	10-30	15-40	---	X	30-60	2-5
Bluegrass	POA++	2-10	5-15	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	---	---	5-10
Nevada bluegrass	PONE3	---	---	2-5	---	---	2-5	2-5
Thurber needlegrass	STTH2	---	---	1-10	---	---	---	2-10
Mountain brome	BRMA4	---	---	---	---	X	2-5	---
Slender wheatgrass	AGTR	---	---	---	---	X	---	---
Cusick bluegrass	POCU3	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-15	2-8	5-10	---	X	2-10	5-10
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	2-5	2-5
Horsemint	MONAR	---	---	---	---	X	---	---
Geranium	GERAN	---	---	---	---	X	---	---
Lupine	LUPIN	---	---	---	---	X	---	---
Hawksbeard	CREPI	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-20	5-10	5-15	---	X	2-5	2-5
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	5-15	---	---	2-5	2-15
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	2-5	5-10
Snowberry	SYMPH	---	---	---	---	X	2-5	---
Other shrubs	SSSS	5-15	1-8	5-15	---	X	2-5	2-10
Quaking aspen	POTR5	---	---	---	---	X	---	---
Range site number		O25X017N	O25X024N	O25X012N	None	O25X065N	O25X010N	O25X009N
Potential production (lb/acre):								
Favorable years		1,000	350	1,200	---	1,400	1,300	800
Normal years		700	250	900	---	1,000	900	600
Unfavorable years		400	150	600	---	700	700	400

701.--Leevan-Pernog-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Leevan	Pernog	Rock outcrop	1	2
Bluebunch wheatgrass	AGSP	15-30	10-20	---	5-10	15-40
Idaho fescue	FEID	30-50	---	---	30-60	20-40
Bluegrass	POA++	2-10	---	---	---	2-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---
Pine bluegrass	POSC	---	5-10	---	---	---
Thurber needlegrass	STTH2	---	10-15	---	---	---
Indian ricegrass	ORHY	---	2-5	---	---	---
Mountain brome	BRMA4	---	---	---	2-5	---
Cusick bluegrass	POCU3	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	---	2-5	---
Basin wildrye	ELCI2	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	1-5	---	2-10	2-10
Balsamroot	BALSA	2-5	---	---	---	---
Hawksbeard	CREPI	---	---	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	2-5
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	10-20	---	2-5	2-10
Low sagebrush	ARAR8	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	---	2-5	1-5
Curlleaf mountainmahogany	CELE3	---	5-10	---	---	---
Mountain big sagebrush	ARTRV	---	1-5	---	2-5	---
Snowberry	SYMPH	---	1-5	---	2-5	---
Big sagebrush	ARTR2	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-10	---	2-5	---
Range site number		O25X017N	O28B042N	None	O25X010N	O25X027N
Potential production (lb/acre):						
Favorable years		1,000	900	---	1,400	1,300
Normal years		700	600	---	1,000	900
Unfavorable years		400	400	---	700	600

702.--Leevan-Quarz-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Leevan	Quarz	McIvey	1	2
Bluebunch wheatgrass	AGSP	15-30	30-50	15-30	---	15-30
Idaho fescue	FEID	30-50	2-5	15-40	---	15-40
Bluegrass	POA++	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Basin wildrye	ELCI2	---	5-10	2-10	---	2-10
Nevada bluegrass	PONE3	---	2-5	2-5	---	2-5
Thurber needlegrass	STTH2	---	2-10	1-10	---	1-10
Other perennial grasses	PPGG	5-15	5-10	5-10	---	5-10
Balsamroot	BALSA	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	5-10	---	5-10
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	1-5
Other perennial forbs	PPFF	5-20	2-5	5-15	---	5-15
Low sagebrush	ARAR8	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	2-15	5-15	---	5-15
Mountain big sagebrush	ARTRV	---	5-10	10-15	---	10-15
Other shrubs	SSSS	5-15	2-10	5-15	---	5-15
Range site number		O25X017N	O25X009N	O25X012N	None	O25X012N
Potential production (lb/acre):						
Favorable years		1,000	1,300	1,200	---	1,200
Normal years		700	900	900	---	900
Unfavorable years		400	700	600	---	600

710.--Samor-Porrone-Rock outcrop association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name			Inclusion number--
		Samor	Porrone	Rock outcrop	1
Bluebunch wheatgrass	AGSP	X	10-40	---	X
Thurber needlegrass	STTH2	X	10-40	---	X
Indian ricegrass	ORHY	X	2-10	---	X
Bluegrass	POA++	X	2-10	---	X
Basin wildrye	ELCI2	---	5-15	---	---
Webber ricegrass	ORWE	---	2-10	---	---
Other perennial grasses	PPGG	X	2-15	---	X
Tapertip hawksbeard	CRAC2	X	---	---	X
Arrowleaf balsamroot	BASA3	X	---	---	---
Globemallow	SPHAE	---	2-5	---	---
Other perennial forbs	PPFF	X	2-10	---	X
Big sagebrush	ARTR2	X	10-15	---	---
Antelope bitterbrush	PUTR2	X	---	---	---
Black sagebrush	ARARN	---	---	---	X
Downy rabbitbrush	CHVIP	---	---	---	X
Other shrubs	SSSS	X	5-15	---	X
Utah juniper	JUOS	X	---	---	X
Range site number		O25X059N	O25X019N	None	O25X060N
Potential production (lb/acre):					
Favorable years		500	800	---	400
Normal years		350	600	---	275
Unfavorable years		200	400	---	150

711.--Samor-Siri-Nirac association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Samor	Siri	Nirac	1	2
Bluebunch wheatgrass	AGSP	X	30-50	15-30	---	---
Thurber needlegrass	STTH2	X	2-10	1-10	---	10-15
Indian ricegrass	ORHY	X	---	---	---	10-15
Bluegrass	POA++	X	---	---	---	2-10
Basin wildrye	ELCI2	---	5-10	2-10	---	---
Idaho fescue	FEID	---	2-5	15-40	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	---
Other perennial grasses	PPGG	X	5-10	5-10	---	5-20
Tapertip hawksbeard	CRAC2	X	2-5	1-5	---	---
Arrowleaf balsamroot	BASA3	X	2-5	5-10	---	---
Globemallow	SPHAE	---	---	---	---	2-5
Other perennial forbs	PPFF	X	2-5	5-15	---	2-10
Big sagebrush	ARTR2	X	---	---	---	---
Antelope bitterbrush	PUTR2	X	2-15	5-15	---	---
Mountain big sagebrush	ARTRV	---	5-10	10-15	---	---
Black sagebrush	ARARN	---	---	---	---	25-35
Other shrubs	SSSS	X	2-10	5-15	---	5-15
Utah juniper	JUOS	X	---	---	---	---

Range site number	O25X059N	O25X009N	O25X012N	None	O24X030N
Potential production (lb/acre):					
Favorable years	500	1,300	1,200	---	500
Normal years	350	900	900	---	350
Unfavorable years	200	700	600	---	250

712.--Samor-Nirac-Samor, steep association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Samor	Nirac	Samor, steep	1	2	3	4
Bluebunch wheatgrass	AGSP	X	15-30	X	15-40	X	---	---
Thurber needlegrass	STTH2	X	1-10	X	---	X	---	---
Indian ricegrass	ORHY	X	---	X	---	X	10-30	---
Bluegrass	POA++	X	---	X	2-10	X	---	---
Idaho fescue	FEID	---	15-40	---	20-40	---	---	---
Basin wildrye	ELCI2	---	2-10	---	2-5	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	X	5-10	X	2-10	X	10-20	---
Tapertip hawksbeard	CRAC2	X	1-5	X	2-5	X	---	---
Arrowleaf balsamroot	BASA3	X	5-10	X	2-5	---	---	---
Other perennial forbs	PPFF	X	5-15	X	2-10	X	5-15	---
Big sagebrush	ARTR2	X	---	X	5-15	---	---	---
Antelope bitterbrush	PUTR2	X	5-15	X	1-5	---	1-5	---
Mountain big sagebrush	ARTRV	---	10-15	---	---	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Black sagebrush	ARARN	---	---	---	---	X	5-15	---
Downy rabbitbrush	CHVIP	---	---	---	---	X	1-5	---
Spiny hopsage	GRSP	---	---	---	---	---	1-5	---
Purple sage	SACA9	---	---	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25	---
Other shrubs	SSSS	X	5-15	X	---	X	2-4	X
Utah juniper	JUOS	X	---	X	---	X	---	---

Range site number	O25X059N	O25X012N	O25X059N	O25X027N	O25X060N	O25X025N	None
Potential production (lb/acre):							
Favorable years	500	1,200	500	1,300	400	200	---
Normal years	350	900	350	900	275	150	---
Unfavorable years	200	600	200	600	150	100	---

716.--Samor-Rock outcrop-Nirac association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name			Inclusion number--
		Samor	Rock outcrop	Nirac	1
Bluebunch wheatgrass	AGSP	X	---	15-30	X
Thurber needlegrass	STTH2	X	---	1-10	X
Indian ricegrass	ORHY	X	---	---	X
Bluegrass	POA++	X	---	---	X
Idaho fescue	FEID	---	---	15-40	---
Basin wildrye	ELCI2	---	---	2-10	---
Nevada bluegrass	PONE3	---	---	2-5	---
Other perennial grasses	PPGG	X	---	5-10	X
Tapertip hawksbeard	CRAC2	X	---	1-5	X
Arrowleaf balsamroot	BASA3	X	---	5-10	X
Other perennial forbs	PPFF	X	---	5-15	X
Big sagebrush	ARTR2	X	---	---	X
Antelope bitterbrush	PUTR2	X	---	5-15	X
Mountain big sagebrush	ARTRV	---	---	10-15	---
Other shrubs	SSSS	X	---	5-15	X
Utah juniper	JUOS	X	---	---	X
Range site number		O25X059N	None	O25X012N	O25X059N
Potential production (lb/acre):					
Favorable years		500	---	1,200	500
Normal years		350	---	900	350
Unfavorable years		200	---	600	200

719.--Samor-Sumine-Eboda association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Samor	Sumine	Eboda	1	2	3
Bluebunch wheatgrass	AGSP	X	30-50	15-30	---	15-30	---
Thurber needlegrass	STTH2	X	2-10	1-10	---	1-10	---
Indian ricegrass	ORHY	X	---	---	---	---	---
Bluegrass	POA++	X	---	---	---	---	---
Basin wildrye	ELCI2	---	5-10	2-10	30-50	2-10	---
Idaho fescue	FEID	---	2-5	15-40	15-30	15-40	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	2-5	---
Big bluegrass	POAM	---	---	---	5-10	---	---
Bulbous oniongrass	MEBU	---	---	---	5-10	---	---
Mountain brome	BRMA4	---	---	---	5-15	---	---
Other perennial grasses	PPGG	X	5-10	5-10	5-15	5-10	---
Tapertip hawksbeard	CRAC2	X	2-5	1-5	---	1-5	---
Arrowleaf balsamroot	BASA3	X	2-5	5-10	---	5-10	---
Other perennial forbs	PPFF	X	2-5	5-15	10-20	5-15	---
Big sagebrush	ARTR2	X	---	---	---	---	---
Antelope bitterbrush	PUTR2	X	2-15	5-15	---	5-15	---
Mountain big sagebrush	ARTRV	---	5-10	10-15	2-5	10-15	---
Other shrubs	SSSS	X	2-10	5-15	2-10	5-15	---
Utah juniper	JUOS	X	---	---	---	---	---

Range site number	O25X059N	O25X009N	O25X012N	025X029N	025X012N	None
Potential production (lb/acre):						
Favorable years	500	1,300	1,200	2,000	1,200	---
Normal years	350	900	900	1,700	900	---
Unfavorable years	200	700	600	1,300	600	---

722.--Lerrow-Hapgood-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Lerrow	Hapgood	Cleavage	1	2	3
Bluebunch wheatgrass	AGSP	30-50	2-5	2-5	30-50	5-10	15-30
Basin wildrye	ELCI2	5-10	---	---	5-10	---	2-10
Idaho fescue	FEID	2-5	2-10	10-30	2-5	30-60	15-40
Nevada bluegrass	PONE3	2-5	2-5	---	2-5	2-5	2-5
Thurber needlegrass	STTH2	2-10	---	---	2-10	---	1-10
Mountain brome	BRMA4	---	5-15	---	---	2-5	---
Slender wheatgrass	AGTR	---	5-15	---	---	---	---
Spike-fescue	HEKI	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	2-5	---	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-15	2-8	5-10	2-10	5-10
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	2-5	5-10
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	---	1-5
Geranium	GERAN	---	2-10	---	---	---	---
Groundsel	SENEC	---	2-10	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Hawksbeard	CREPI	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-15	5-10	2-5	2-5	5-15
Antelope bitterbrush	PUTR2	2-15	2-5	---	2-15	2-5	5-15
Mountain big sagebrush	ARTRV	5-10	---	---	5-10	2-5	10-15
Snowberry	SYMPH	---	2-10	---	---	2-5	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---
Other shrubs	SSSS	2-10	2-10	1-8	2-10	2-5	5-15
Range site number		O25X009N	O25X004N	O25X024N	O25X009N	O25X010N	O25X012N
Potential production (lb/acre):							
Favorable years		1,300	2,600	350	1,300	1,400	1,200
Normal years		900	1,800	250	900	1,000	900
Unfavorable years		700	1,400	150	700	700	600

723.--Lerrow-Cotant-Bregar association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Lerrow	Cotant	Bregar	1	2	3
Bluebunch wheatgrass	AGSP	30-50	15-30	10-20	30-50	15-30	15-30
Basin wildrye	ELCI2	5-10	---	---	5-10	---	2-10
Idaho fescue	FEID	2-5	30-50	10-20	2-5	30-50	15-40
Nevada bluegrass	PONE3	2-5	---	---	2-5	---	2-5
Thurber needlegrass	STTH2	2-10	---	2-10	2-10	---	1-10
Bluegrass	POA++	---	2-10	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5	---
Other perennial grasses	PPGG	5-10	5-15	1-5	5-10	5-15	5-10
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	---	5-10
Tapertip hawksbeard	CRAC2	2-5	---	---	2-5	---	1-5
Balsamroot	BALSA	---	2-5	---	---	2-5	---
Other perennial forbs	PPFF	2-5	5-20	---	2-5	5-20	5-15
Antelope bitterbrush	PUTR2	2-15	1-10	5-15	2-15	1-10	5-15
Mountain big sagebrush	ARTRV	5-10	---	---	5-10	---	10-15
Low sagebrush	ARAR8	---	10-25	20-30	---	10-25	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Other shrubs	SSSS	2-10	5-15	1-3	2-10	5-15	5-15

Range site number	O25X009N	O25X017N	O25X051N	O25X009N	O25X017N	O25X012N
Potential production (lb/acre):						
Favorable years	1,300	1,000	400	1,300	1,000	1,200
Normal years	900	700	300	900	700	900
Unfavorable years	700	400	200	700	400	600

740.--Connel extremely gravelly coarse sandy loam, 0 to 2 percent slopes

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants major soils and inclusions	
		Soil name	Inclusion number--
		Connel	1
Needleandthread	STCO4	20-30	---
Indian ricegrass	ORHY	10-20	2-10
Thickspike wheatgrass	AGDA	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---
Bluebunch wheatgrass	AGSP	---	10-40
Thurber needlegrass	STTH2	---	10-40
Basin wildrye	ELCI2	---	5-15
Webber ricegrass	ORWE	---	2-10
Bluegrass	POA++	---	2-10
Other perennial grasses	PPGG	2-5	2-15
Globemallow	SPHAE	---	2-5
Other perennial forbs	PPFF	10-20	2-10
Big sagebrush	ARTR2	10-20	10-15
Spiny hopsage	GRSP	1-5	---
Other shrubs	SSSS	2-10	5-15
Range site number		O24X017N	O25X019N
Potential production (lb/acre):			
Favorable years		900	800
Normal years		700	600
Unfavorable years		500	400

760.--Yuko-Tuffo-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Yuko	Tuffo	Quarz	1	2	3
Bluebunch wheatgrass	AGSP	40-80	40-80	20-30	15-30	15-40	---
Thurber needlegrass	STTH2	5-15	5-15	15-25	1-10	15-40	---
Basin wildrye	ELCI2	2-5	2-5	---	2-10	---	---
Indian ricegrass	ORHY	2-5	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	2-10	2-5	---	---
Idaho fescue	FEID	---	---	---	15-40	---	---
Webber ricegrass	ORWE	---	---	---	---	5-15	---
Bluegrass	POA++	---	---	---	---	5-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---
Other perennial grasses	PPGG	2-10	2-10	10-15	5-10	1-10	---
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	1-5	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	5-10	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-5	5-15	5-10	---
Big sagebrush	ARTR2	2-10	2-10	10-15	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	5-15	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Low sagebrush	ARAR8	---	---	---	---	15-25	---
Other shrubs	SSSS	2-8	2-8	5-10	5-15	5-15	---
Range site number		O25X015N	O25X015N	O25X014N	O25X012N	O25X018N	None
Potential production (lb/acre):							
Favorable years		1,000	1,000	1,000	1,200	800	---
Normal years		700	700	800	900	600	---
Unfavorable years		500	500	600	600	400	---

761.--Yuko-Tuffo-Bregar association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Yuko	Tuffo	Bregar	1	2	3
Bluebunch wheatgrass	AGSP	40-80	40-80	15-30	15-30	15-40	---
Thurber needlegrass	STTH2	5-15	5-15	15-20	1-10	15-40	---
Basin wildrye	ELCI2	2-5	2-5	---	2-10	---	---
Indian ricegrass	ORHY	2-5	2-5	---	---	---	---
Webber ricegrass	ORWE	---	---	5-15	---	5-15	---
Bottlebrush squirreltail	SIHY	---	---	3-7	---	2-5	---
Bluegrass	POA++	---	---	2-10	---	5-10	---
Idaho fescue	FEID	---	---	---	15-40	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	---
Other perennial grasses	PPGG	2-10	2-10	---	5-10	1-10	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	1-5	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	5-10	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-15	5-10	---
Big sagebrush	ARTR2	2-10	2-10	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	5-15	---	---
Low sagebrush	ARAR8	---	---	15-25	---	15-25	---
Douglas rabbitbrush	CHVI8	---	---	2-5	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Other shrubs	SSSS	2-8	2-8	---	5-15	5-15	---
Range site number		O25X015N	O25X015N	O25X022N	O25X012N	O25X018N	None
Potential production (lb/acre):							
Favorable years		1,000	1,000	500	1,200	800	---
Normal years		700	700	375	900	600	---
Unfavorable years		500	500	250	600	400	---

762.--Yuko-Bilbo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Yuko	Bilbo	1	2	3
Bluebunch wheatgrass	AGSP	40-80	40-80	10-40	20-30	10-40
Thurber needlegrass	STTH2	5-15	5-15	10-40	15-25	10-40
Basin wildrye	ELCI2	2-5	2-5	5-15	---	5-15
Indian ricegrass	ORHY	2-5	2-5	2-10	---	2-10
Webber ricegrass	ORWE	---	---	2-10	---	2-10
Bluegrass	POA++	---	---	2-10	---	2-10
Nevada bluegrass	PONE3	---	---	---	2-10	---
Other perennial grasses	PPGG	2-10	2-10	2-15	10-15	2-15
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	---
Globemallow	SPHAE	---	---	2-5	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	2-10
Big sagebrush	ARTR2	2-10	2-10	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	1-10	---	1-10	---
Other shrubs	SSSS	2-8	2-8	5-15	5-10	5-15
Range site number		O25X015N	O25X015N	O25X019N	O25X014N	O25X019N
Potential production (lb/acre):						
Favorable years		1,000	1,000	800	1,000	800
Normal years		700	700	600	800	600
Unfavorable years		500	500	400	600	400

763.--Yuko-Tuffo-Yuko, moderately steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Yuko	Tuffo	Yuko, moderately steep	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	40-80	40-80	10-40	15-40
Thurber needlegrass	STTH2	10-40	10-40	5-15	5-15	10-40	---
Basin wildrye	ELCI2	5-15	5-15	2-5	2-5	5-15	2-5
Indian ricegrass	ORHY	2-10	2-10	2-5	2-5	2-10	---
Webber ricegrass	ORWE	2-10	2-10	---	---	2-10	---
Bluegrass	POA++	2-10	2-10	---	---	2-10	2-10
Idaho fescue	FEID	---	---	---	---	---	20-40
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---
Other perennial grasses	PPGG	2-15	2-15	2-10	2-10	2-15	2-10
Globemallow	SPHAE	2-5	2-5	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	2-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	---	---	2-5
Balsamroot	BALSA	---	---	---	---	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	2-10	2-10	10-15	5-15
Antelope bitterbrush	PUTR2	---	---	1-10	1-10	---	1-5
Rabbitbrush	CHRYS9	---	---	---	---	---	2-5
Low sagebrush	ARAR8	---	---	---	---	---	---
Other shrubs	SSSS	5-15	5-15	2-8	2-8	5-15	---
Range site number		O25X019N	O25X019N	O25X015N	O25X015N	O25X019N	O25X027N
Potential production (lb/acre):							
Favorable years		800	800	1,000	1,000	800	1,300
Normal years		600	600	700	700	600	900
Unfavorable years		400	400	500	500	400	600

764.--Yuko-Tuffo-Upsteer association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Yuko	Tuffo	Upsteer	1	2	3	4
Bluebunch wheatgrass	AGSP	40-80	40-80	15-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	5-15	5-15	---	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	2-5	2-5	2-5	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-5	2-5	---	2-10	2-10	2-10	2-10
Idaho fescue	FEID	---	---	20-40	---	---	---	---
Bluegrass	POA++	---	---	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	---	---	---	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-10	2-10	2-10	2-15	2-15	2-15	2-15
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	---
Globemallow	SPHAE	---	---	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	2-10	2-10	5-15	10-15	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	---	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---	---
Other shrubs	SSSS	2-8	2-8	---	5-15	5-15	5-15	5-15
Range site number		O25X015N	O25X015N	O25X027N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,300	800	800	800	800
Normal years		700	700	900	600	600	600	600
Unfavorable years		500	500	600	400	400	400	400

770.--Gochea-Donna association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Gochea	Donna	1	2
Bluebunch wheatgrass	AGSP	20-30	15-40	20-30	---
Thurber needlegrass	STTH2	15-25	15-40	15-25	---
Nevada bluegrass	PONE3	2-10	---	2-10	5-15
Webber ricegrass	ORWE	---	5-15	---	---
Bluegrass	POA++	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	50-60
Mat muhly	MURI	---	---	---	2-10
Sedge	CAREX	---	---	---	1-5
Other perennial grasses	PPGG	10-15	1-10	10-15	15-20
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	---
Balsamroot	BALSA	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-10	2-5	5-10
Big sagebrush	ARTR2	10-15	---	10-15	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	---
Low sagebrush	ARAR8	---	15-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15
Other shrubs	SSSS	5-10	5-15	5-10	2-5
Range site number		O25X014N	O25X018N	O25X014N	O25X003N
Potential production (lb/acre):					
Favorable years		1,000	800	1,000	2,500
Normal years		800	600	800	1,900
Unfavorable years		600	400	600	1,200

771.--Gochea-Welch, drained-Welch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Gochea	Welch, drained	Welch	1	2
Bluebunch wheatgrass	AGSP	20-30	---	---	20-30	---
Thurber needlegrass	STTH2	15-25	---	---	15-25	---
Nevada bluegrass	PONE3	2-10	5-15	5-10	2-10	---
Basin wildrye	ELCI2	---	50-60	---	---	40-60
Mat muhly	MURI	---	2-10	---	---	---
Sedge	CAREX	---	1-5	5-10	---	---
Tufted hairgrass	DECA5	---	---	30-60	---	---
Alpine timothy	PHAL2	---	---	5-10	---	---
Alkali sacaton	SPAI	---	---	---	---	15-30
Inland saltgrass	DIST	---	---	---	---	5-10
Other perennial grasses	PPGG	10-15	15-20	2-10	10-15	2-8
Tapertip hawksbeard	CRAC2	2-5	---	---	2-5	---
Arrowleaf balsamroot	BASA3	2-5	---	---	2-5	---
Sierra clover	TRWO	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-10	10-20	2-5	2-8
Big sagebrush	ARTR2	10-15	---	---	10-15	---
Antelope bitterbrush	PUTR2	1-10	---	---	1-10	---
Basin big sagebrush	ARTRT*	---	10-15	---	---	---
Black greasewood	SAVE4	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	2-5
Other shrubs	SSSS	5-10	2-5	2-5	5-10	2-5
Range site number		O25X014N	O25X003N	O25X005N	O25X014N	O24X007N
Potential production (lb/acre):						
Favorable years		1,000	2,500	2,000	1,000	1,900
Normal years		800	1,900	1,700	800	1,400
Unfavorable years		600	1,200	1,000	600	800

772.--Gochea-Gochea, gravelly-Tuffo association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Gochea	Gochea, gravelly	Tuffo	1	2
Bluebunch wheatgrass	AGSP	20-30	20-30	10-40	20-30	20-30
Thurber needlegrass	STTH2	15-25	15-25	10-40	15-25	15-25
Nevada bluegrass	PONE3	2-10	2-10	---	2-10	2-10
Basin wildrye	ELCI2	---	---	5-15	---	---
Indian ricegrass	ORHY	---	---	2-10	---	---
Webber ricegrass	ORWE	---	---	2-10	---	---
Bluegrass	POA++	---	---	2-10	---	---
Other perennial grasses	PPGG	10-15	10-15	2-15	10-15	10-15
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	2-5
Arrowleaf balsamroot	BASA3	2-5	2-5	---	2-5	2-5
Globemallow	SPHAE	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	2-5	2-10	2-5	2-5
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	1-10	1-10	---	1-10	1-10
Other shrubs	SSSS	5-10	5-10	5-15	5-10	5-10
Range site number		O25X014N	O25X014N	O25X019N	O25X014N	O25X014N
Potential production (lb/acre):						
Favorable years		1,000	1,000	800	1,000	1,000
Normal years		800	800	600	800	800
Unfavorable years		600	600	400	600	600

773.--Gochea-Samor-Nirac association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Gochea	Samor	Nirac	1	2	3
Bluebunch wheatgrass	AGSP	20-30	X	15-30	10-40	15-30	20-30
Thurber needlegrass	STTH2	15-25	X	1-10	10-40	1-10	15-25
Nevada bluegrass	PONE3	2-10	---	2-5	---	2-5	2-10
Indian ricegrass	ORHY	---	X	---	2-10	---	---
Bluegrass	POA++	---	X	---	2-10	---	---
Idaho fescue	FEID	---	---	15-40	---	15-40	---
Basin wildrye	ELCI2	---	---	2-10	5-15	2-10	---
Webber ricegrass	ORWE	---	---	---	2-10	---	---
Other perennial grasses	PPGG	10-15	X	5-10	2-15	5-10	10-15
Tapertip hawksbeard	CRAC2	2-5	X	1-5	---	1-5	2-5
Arrowleaf balsamroot	BASA3	2-5	X	5-10	---	5-10	2-5
Globemallow	SPHAE	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	X	5-15	2-10	5-15	2-5
Big sagebrush	ARTR2	10-15	X	---	10-15	---	10-15
Antelope bitterbrush	PUTR2	1-10	X	5-15	---	5-15	1-10
Mountain big sagebrush	ARTRV	---	---	10-15	---	10-15	---
Other shrubs	SSSS	5-10	X	5-15	5-15	5-15	5-10
Utah juniper	JUOS	---	X	---	---	---	---
Range site number		O25X014N	O25X059N	O25X012N	O25X019N	O25X012N	O25X014N
Potential production (lb/acre):							
Favorable years		1,000	500	1,200	800	1,200	1,000
Normal years		800	350	900	600	900	800
Unfavorable years		600	200	600	400	600	600

775.--Gochea-Donna-Stampede association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Gochea	Donna	Stampede	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	15-40	20-30	15-40	---	---	---
Thurber needlegrass	STTH2	15-25	15-40	15-25	---	---	---	---
Nevada bluegrass	PONE3	2-10	---	2-10	---	5-10	5-15	5-15
Webber ricegrass	ORWE	---	5-15	---	---	---	---	---
Bluegrass	POA++	---	5-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Idaho fescue	FEID	---	---	---	20-40	---	---	---
Basin wildrye	ELCI2	---	---	---	2-5	---	50-60	50-60
Mat muhly	MURI	---	---	---	---	---	2-10	2-10
Sedge	CAREX	---	---	---	---	5-10	1-5	1-5
Tufted hairgrass	DECA5	---	---	---	---	30-60	---	---
Alpine timothy	PHAL2	---	---	---	---	5-10	---	---
Other perennial grasses	PPGG	10-15	1-10	10-15	2-10	2-10	15-20	15-20
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	2-5	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-10	2-5	2-10	10-20	5-10	5-10
Big sagebrush	ARTR2	10-15	---	10-15	5-15	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	1-5	---	---	---
Low sagebrush	ARAR8	---	15-25	---	---	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	10-15
Other shrubs	SSSS	5-10	5-15	5-10	---	2-5	2-5	2-5
Range site number		O25X014N	O25X018N	O25X014N	O25X027N	O25X005N	O25X003N	O25X003N
Potential production (lb/acre):								
Favorable years		1,000	800	1,000	1,300	2,000	2,500	2,500
Normal years		800	600	800	900	1,700	1,900	1,900
Unfavorable years		600	400	600	600	1,000	1,200	1,200

780.--Cowgil-Linkup-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Cowgil	Linkup	Rock outcrop	1	2
Bluebunch wheatgrass	AGSP	10-40	15-40	---	15-40	10-40
Thurber needlegrass	STTH2	10-40	15-40	---	15-40	10-40
Basin wildrye	ELCI2	5-15	---	---	---	5-15
Indian ricegrass	ORHY	2-10	---	---	---	2-10
Webber ricegrass	ORWE	2-10	5-15	---	5-15	2-10
Bluegrass	POA++	2-10	5-10	---	5-10	2-10
Bottlebrush squirreltail	SIHY	---	2-5	---	2-5	---
Other perennial grasses	PPGG	2-15	1-10	---	1-10	2-15
Globemallow	SPHAE	2-5	---	---	---	2-5
Balsamroot	BALSA	---	2-5	---	2-5	---
Other perennial forbs	PPFF	2-10	5-10	---	5-10	2-10
Big sagebrush	ARTR2	10-15	---	---	---	10-15
Low sagebrush	ARAR8	---	15-25	---	15-25	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15
Range site number		O25X019N	O25X018N	None	O25X018N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	---	800	800
Normal years		600	600	---	600	600
Unfavorable years		400	400	---	400	400

810.--Nirac-Izod-Izod, very steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Nirac	Izod	Izod, very steep	1	2	3	4
Idaho fescue	FEID	15-40	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	15-30	---	---	40-80	10-40	---	---
Basin wildrye	ELCI2	2-10	---	---	2-5	5-15	---	50-60
Nevada bluegrass	PONE3	2-5	---	---	---	---	---	5-15
Thurber needlegrass	STTH2	1-10	10-15	10-15	5-15	10-40	---	---
Indian ricegrass	ORHY	---	10-15	10-15	2-5	2-10	---	---
Bluegrass	POA++	---	2-10	2-10	---	2-10	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Webber ricegrass	ORWE	---	---	---	---	2-10	---	---
Other perennial grasses	PPGG	5-10	5-20	5-20	2-10	2-15	---	15-20
Arrowleaf balsamroot	BASA3	5-10	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	2-5	---	---	---
Globemallow	SPHAE	---	2-5	2-5	---	2-5	---	---
Other perennial forbs	PPFF	5-15	2-10	2-10	2-10	2-10	---	5-10
Mountain big sagebrush	ARTRV	10-15	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	5-15	---	---	1-10	---	---	---
Black sagebrush	ARARN	---	25-35	25-35	---	---	---	---
Big sagebrush	ARTR2	---	---	---	2-10	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	2-8	5-15	---	2-5
Range site number		O25X012N	O24X030N	O24X030N	O25X015N	O25X019N	None	O25X003N
Potential production (lb/acre):								
Favorable years		1,200	500	500	1,000	800	---	2,500
Normal years		900	350	350	700	600	---	1,900
Unfavorable years		600	250	250	500	400	---	1,200

813.--Spilock-Gochea-Chiara association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Spilock	Gochea	Chiara	1	2	3
Bluebunch wheatgrass	AGSP	X	20-30	10-40	---	X	10-40
Indian ricegrass	ORHY	X	---	2-10	10-15	X	2-10
Bluegrass	POA++	X	---	2-10	2-10	X	2-10
Thurber needlegrass	STTH2	X	15-25	10-40	10-15	X	10-40
Nevada bluegrass	PONE3	---	2-10	---	---	---	---
Basin wildrye	ELCI2	---	---	5-15	---	---	5-15
Webber ricegrass	ORWE	---	---	2-10	---	---	2-10
Other perennial grasses	PPGG	X	10-15	2-15	5-20	X	2-15
Tapertip hawksbeard	CRAC2	X	2-5	---	---	X	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	X	---
Globemallow	SPHAE	---	---	2-5	2-5	---	2-5
Other perennial forbs	PPFF	X	2-5	2-10	2-10	X	2-10
Black sagebrush	ARARN	X	---	---	25-35	---	---
Downy rabbitbrush	CHVIP	X	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	X	10-15
Antelope bitterbrush	PUTR2	---	1-10	---	---	X	---
Other shrubs	SSSS	X	5-10	5-15	5-15	X	5-15
Utah juniper	JUOS	X	---	---	---	X	---

Range site number	O25X060N	O25X014N	O25X019N	O24X030N	O25X059N	O25X019N
Potential production (lb/acre):						
Favorable years	400	1,000	800	500	500	800
Normal years	275	800	600	350	350	600
Unfavorable years	150	600	400	250	200	400

814.--Denay-Siri-Bobs association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Denny	Siri	Bobs	1	2	3	4
Idaho fescue	FEID	15-40	2-5	---	15-40	---	---	---
Bluebunch wheatgrass	AGSP	15-30	30-50	20-30	15-30	15-40	---	X
Basin wildrye	ELCI2	2-10	5-10	---	2-10	---	50-60	---
Nevada bluegrass	PONE3	2-5	2-5	2-10	2-5	---	5-15	---
Thurber needlegrass	STTH2	1-10	2-10	15-25	1-10	15-40	---	X
Webber ricegrass	ORWE	---	---	---	---	5-15	---	---
Bluegrass	POA++	---	---	---	---	5-10	---	X
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Indian ricegrass	ORHY	---	---	---	---	---	---	X
Other perennial grasses	PPGG	5-10	5-10	10-15	5-10	1-10	15-20	X
Arrowleaf balsamroot	BASA3	5-10	2-5	2-5	5-10	---	---	X
Tapertip hawksbeard	CRAC2	1-5	2-5	2-5	1-5	---	---	X
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	5-15	2-5	2-5	5-15	5-10	5-10	X
Mountain big sagebrush	ARTRV	10-15	5-10	---	10-15	---	---	---
Antelope bitterbrush	PUTR2	5-15	2-15	1-10	5-15	---	---	X
Big sagebrush	ARTR2	---	---	10-15	---	---	---	X
Low sagebrush	ARAR8	---	---	---	---	15-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	2-10	5-10	5-15	5-15	2-5	X
Utah juniper	JUOS	---	---	---	---	---	---	X
Range site number		O25X012N	O25X009N	O25X014N	O25X012N	O25X018N	O25X003N	O25X059N
Potential production (lb/acre):								
Favorable years		1,200	1,300	1,000	1,200	800	2,500	500
Normal years		900	900	800	900	600	1,900	350
Unfavorable years		600	700	600	600	400	1,200	200

832.--Alburz-Alburz Variant association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Alburz	Alburz Variant	1	2	3	4
Tufted hairgrass	DECA5	30-60	---	30-60	---	---	---
Nevada bluegrass	PONE3	5-10	---	5-10	5-10	---	40-60
Alpine timothy	PHAL2	5-10	---	5-10	---	---	20-40
Sedge	CAREX	5-10	X	5-10	---	X	5-15
Bluegrass	POA++	---	X	---	---	X	---
Rush	JUNCU	---	X	---	---	X	---
Streambank wheatgrass	AGRI	---	X	---	---	X	---
Western wheatgrass	AGSM	---	X	---	---	X	---
Wildrye	ELYMU	---	---	---	30-60	---	---
Inland saltgrass	DIST	---	---	---	5-10	---	---
Mat muhly	MURI	---	---	---	2-10	---	5-15
Basin wildrye	ELCI2	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-10	X	2-10	5-15	X	2-8
Sierra clover	TRWO	2-5	---	2-5	2-5	---	---
Cinquefoil	POTEN	2-5	---	2-5	---	---	2-5
Other perennial forbs	PPFF	10-20	X	10-20	5-10	X	2-10
Woods rose	ROWO	---	X	---	---	X	---
Currant	RIBES	---	X	---	---	X	---
Willow	SALIX	---	X	---	5-10	X	---
Basin big sagebrush	ARTRT*	---	---	---	2-5	---	---
Silver sagebrush	ARCA13	---	---	---	2-5	---	---
Other shrubs	SSSS	2-5	X	2-5	2-8	X	2-5
Cottonwood	POPUL	---	X	---	---	X	---

Range site number	O25X005N	O25X053N	O25X005N	O25X001N	O25X053N	O25X006N
Potential production (lb/acre):						
Favorable years	2,000	2,500	2,000	3,000	2,500	1,600
Normal years	1,700	2,000	1,700	2,500	2,000	1,300
Unfavorable years	1,000	1,500	1,000	1,800	1,500	800

834.--Alburz-Welch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Alburz	Welch	1	2
Nevada bluegrass	PONE3	40-60	5-15	5-15	40-60
Alpine timothy	PHAL2	20-40	---	---	20-40
Sedge	CAREX	5-15	1-5	1-5	5-15
Mat muhly	MURI	5-15	2-10	2-10	5-15
Basin wildrye	ELCI2	5-15	50-60	50-60	5-15
Meadow barley	HOBR2	2-5	---	---	2-5
Other perennial grasses	PPGG	2-8	15-20	15-20	2-8
Cinquefoil	POTEN	2-5	---	---	2-5
Other perennial forbs	PPFF	2-10	5-10	5-10	2-10
Basin big sagebrush	ARTRT*	---	10-15	10-15	---
Other shrubs	SSSS	2-5	2-5	2-5	2-5
Range site number		O25X006N	O25X003N	O25X003N	O25X006N
Potential production (lb/acre):					
Favorable years		1,600	2,500	2,500	1,600
Normal years		1,300	1,900	1,900	1,300
Unfavorable years		800	1,200	1,200	800

835.--Alburz-Ocala association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Alburz	Ocala	1	2
Nevada bluegrass	PONE3	40-60	---	---	---
Alpine timothy	PHAL2	20-40	---	---	---
Sedge	CAREX	5-15	---	---	---
Mat muhly	MURI	5-15	---	---	---
Basin wildrye	ELCI2	5-15	40-60	15-20	40-60
Meadow barley	HOBR2	2-5	---	---	---
Alkali sacaton	SPAI	---	15-30	---	15-30
Inland saltgrass	DIST	---	5-10	2-10	5-10
Bottlebrush squirreltail	SIHY	---	---	2-10	---
Other perennial grasses	PPGG	2-8	2-8	2-4	2-8
Cinquefoil	POTEN	2-5	---	---	---
Other perennial forbs	PPFF	2-10	2-8	2-8	2-8
Black greasewood	SAVE4	---	5-15	40-60	5-15
Rabbitbrush	CHRYS9	---	2-5	---	2-5
Other shrubs	SSSS	2-5	2-5	5-10	2-5
Range site number		O25X006N	O24X007N	O24X008N	O24X007N
Potential production (lb/acre):					
Favorable years		1,600	1,900	800	1,900
Normal years		1,300	1,400	600	1,400
Unfavorable years		800	800	400	800

839.--Woofus-Tweba-Devilsgait association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Woofus	Tweba	Devilsgait	1	2	3	4
Wildrye	ELYMU	30-60	30-60	30-60	---	---	30-60	---
Nevada bluegrass	PONE3	5-10	5-10	5-10	5-15	---	5-10	---
Inland saltgrass	DIST	5-10	5-10	5-10	---	---	5-10	5-10
Mat muhly	MURI	2-10	2-10	2-10	2-10	---	2-10	---
Basin wildrye	ELCI2	---	---	---	50-60	50-60	---	40-60
Alkali sacaton	SPAI	---	---	---	---	---	---	15-30
Western wheatgrass	AGSM	---	---	---	---	5-15	---	---
Sedge	CAREX	---	---	---	1-5	---	---	---
Other perennial grasses	PPGG	5-15	5-15	5-15	15-20	5-20	5-15	2-8
Sierra clover	TRWO	2-5	2-5	2-5	---	---	2-5	---
Other perennial forbs	PPFF	5-10	5-10	5-10	5-10	2-8	5-10	2-8
Willow	SALIX	5-10	5-10	5-10	---	---	5-10	---
Basin big sagebrush	ARTRT*	2-5	2-5	2-5	10-15	15-20	2-5	---
Silver sagebrush	ARCA13	2-5	2-5	2-5	---	---	2-5	---
Black greasewood	SAVE4	---	---	---	---	2-10	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	---	---	2-5
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---	---
Other shrubs	SSSS	2-8	2-8	2-8	2-5	1-4	2-8	2-5
Range site number		O25X001N	O25X001N	O25X001N	O25X003N	O24X006N	O25X001N	O24X007N
Potential production (lb/acre):								
Favorable years		3,000	3,000	3,000	2,500	1,500	3,000	1,900
Normal years		2,500	2,500	2,500	1,900	1,100	2,500	1,400
Unfavorable years		1,800	1,800	1,800	1,200	600	1,800	800

840.--Ninemile-Quarz-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Ninemile	Quarz	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	15-30	20-30	---	40-80	---	15-30
Idaho fescue	FEID	30-50	---	---	---	---	15-40
Bluegrass	POA++	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Thurber needlegrass	STTH2	---	15-25	---	5-15	---	1-10
Nevada bluegrass	PONE3	---	2-10	---	---	5-15	2-5
Basin wildrye	ELCI2	---	---	---	2-5	50-60	2-10
Indian ricegrass	ORHY	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-15	10-15	---	2-10	15-20	5-10
Balsamroot	BALSA	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	2-5	---	1-5
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	5-10
Other perennial forbs	PPFF	5-20	2-5	---	2-10	5-10	5-15
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	---	1-10	---	5-15
Big sagebrush	ARTR2	---	10-15	---	2-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Mountain big sagebrush	ARTRV	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-10	---	2-8	2-5	5-15
Range site number		O25X017N	O25X014N	None	O25X015N	O25X003N	O25X012N
Potential production (lb/acre):							
Favorable years		1,000	1,000	---	1,000	2,500	1,200
Normal years		700	800	---	700	1,900	900
Unfavorable years		400	600	---	500	1,200	600

851.--Loomis-Izod association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Loomis	Izod	1	2	3	4
Indian ricegrass	ORHY	10-15	10-15	---	2-5	---	---
Thurber needlegrass	STTH2	10-15	10-15	---	5-15	2-10	15-40
Bluegrass	POA++	2-10	2-10	---	---	---	5-10
Bluebunch wheatgrass	AGSP	---	---	---	40-80	30-50	15-40
Webber ricegrass	ORWE	---	---	---	---	---	5-15
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5
Basin wildrye	ELCI2	---	---	---	2-5	5-10	---
Idaho fescue	FEID	---	---	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-20	5-20	---	2-10	5-10	1-10
Globemallow	SPHAE	2-5	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	---	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	---	2-10	2-5	5-10
Black sagebrush	ARARN	25-35	25-35	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	15-25
Big sagebrush	ARTR2	---	---	---	2-10	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-10	2-15	---
Mountain big sagebrush	ARTRV	---	---	---	---	5-10	---
Other shrubs	SSSS	5-15	5-15	---	2-8	2-10	5-15
Range site number		O24X030N	O24X030N	None	O25X015N	O25X009N	O25X018N
Potential production (lb/acre):							
Favorable years		500	500	---	1,000	1,300	800
Normal years		350	350	---	700	900	600
Unfavorable years		250	250	---	500	700	400

852.--Loomis-Vanwyper-Norfork association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Loomis	Vanwyper	Norfork	1	2
Indian ricegrass	ORHY	10-15	2-10	10-15	2-10	2-10
Thurber needlegrass	STTH2	10-15	10-40	10-15	10-40	10-40
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10
Bluebunch wheatgrass	AGSP	---	10-40	---	10-40	10-40
Basin wildrye	ELCI2	---	5-15	---	5-15	5-15
Webber ricegrass	ORWE	---	2-10	---	2-10	2-10
Other perennial grasses	PPGG	5-20	2-15	5-20	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10
Black sagebrush	ARARN	25-35	---	25-35	---	---
Big sagebrush	ARTR2	---	10-15	---	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O24X030N	O25X019N	O24X030N	O25X019N	O25X019N
Potential production (lb/acre):						
Favorable years		500	800	500	800	800
Normal years		350	600	350	600	600
Unfavorable years		250	400	250	400	400

862.--Loncan-Hapgood-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Loncan	Hapgood	Cleavage	1	2	3
Idaho fescue	FEID	15-40	2-10	10-30	30-60	X	---
Bluebunch wheatgrass	AGSP	15-30	2-5	2-5	5-10	---	---
Basin wildrye	ELCI2	2-10	---	---	---	---	---
Nevada bluegrass	PONE3	2-5	2-5	---	2-5	---	---
Thurber needlegrass	STTH2	1-10	---	---	---	---	---
Mountain brome	BRMA4	---	5-15	---	2-5	X	---
Slender wheatgrass	AGTR	---	5-15	---	---	X	2-5
Spike-fescue	HEKI	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	2-5	---	---	---	60-70
Bluegrass	POA++	---	---	5-15	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---
Columbia needlegrass	STCO3	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	5-15	2-8	2-10	X	2-5
Arrowleaf balsamroot	BASA3	5-10	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	1-5	---	2-5	---	---	---
Geranium	GERAN	---	2-10	---	---	X	---
Groundsel	SENEC	---	2-10	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---
Hawksbeard	CREPI	---	---	---	2-5	---	---
Horsemint	MONAR	---	---	---	---	X	---
Lupine	LUPIN	---	---	---	---	X	---
Tailcup lupine	LUCA	---	---	---	---	---	20-40
Other perennial forbs	PPFF	5-15	5-15	5-10	2-5	X	---
Mountain big sagebrush	ARTRV	10-15	---	---	2-5	---	---
Antelope bitterbrush	PUTR2	5-15	2-5	---	2-5	---	---
Snowberry	SYMPH	---	2-10	---	2-5	X	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---
Other shrubs	SSSS	5-15	2-10	1-8	2-5	X	---
Quaking aspen	POTR5	---	---	---	---	X	---

Range site number	O25X012N	O25X004N	O25X024N	O25X010N	O25X065N	O25X028N
Potential production (lb/acre):						
Favorable years	1,200	2,600	350	1,400	800	1,000
Normal years	900	1,800	250	1,000	600	800
Unfavorable years	600	1,400	150	700	400	500

881.--Kleckner-Fulstone-Stampede association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Kleckner	Fulstone	Stampede	1	2
Bluebunch wheatgrass	AGSP	20-30	15-40	20-30	---	15-40
Thurber needlegrass	STTH2	15-25	15-40	15-25	---	15-40
Nevada bluegrass	PONE3	2-10	---	2-10	5-15	---
Webber ricegrass	ORWE	---	5-15	---	---	5-15
Bluegrass	POA++	---	5-10	---	---	5-10
Bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5
Basin wildrye	ELCI2	---	---	---	50-60	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Other perennial grasses	PPGG	10-15	1-10	10-15	15-20	1-10
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	---	---
Balsamroot	BALSA	---	2-5	---	---	2-5
Other perennial forbs	PPFF	2-5	5-10	2-5	5-10	5-10
Big sagebrush	ARTR2	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	---	---
Low sagebrush	ARAR8	---	15-25	---	---	15-25
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	5-10	5-15	5-10	2-5	5-15
Range site number		O25X014N	O25X018N	O25X014N	O25X003N	O25X018N
Potential production (lb/acre):						
Favorable years		1,000	800	1,000	2,500	800
Normal years		800	600	800	1,900	600
Unfavorable years		600	400	600	1,200	400

912.--Tuffo-Yuko-Tuffo, moderately steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Tuffo	Yuko	Tuffo, moderately steep	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	50-60
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	15-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	5-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X003N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	2,500
Normal years		600	600	600	600	600	1,900
Unfavorable years		400	400	400	400	400	1,200

913.--Tuffo-Yuko-Vanwyper association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Tuffo	Yuko	Vanwyper	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	40-80	40-80	---	40-80	10-40	10-40
Thurber needlegrass	STTH2	10-40	5-15	5-15	---	5-15	10-40	10-40
Basin wildrye	ELCI2	5-15	2-5	2-5	---	2-5	5-15	5-15
Indian ricegrass	ORHY	2-10	2-5	2-5	---	2-5	2-10	2-10
Webber ricegrass	ORWE	2-10	---	---	---	---	2-10	2-10
Bluegrass	POA++	2-10	---	---	---	---	2-10	2-10
Other perennial grasses	PPGG	2-15	2-10	2-10	---	2-10	2-15	2-15
Globemallow	SPHAE	2-5	---	---	---	---	2-5	2-5
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	---	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	2-10	2-10	---	2-10	10-15	10-15
Antelope bitterbrush	PUTR2	---	1-10	1-10	---	1-10	---	---
Other shrubs	SSSS	5-15	2-8	2-8	---	2-8	5-15	5-15
Range site number		O25X019N	O25X015N	O25X015N	None	O25X015N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	1,000	1,000	---	1,000	800	800
Normal years		600	700	700	---	700	600	600
Unfavorable years		400	500	500	---	500	400	400

920.--Bullump-Gando-Tusel association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bullump	Gando	Tusel	1	2	3	4
Basin wildrye	ELCI2	10-20	---	---	---	---	---	50-60
Mountain brome	BRMA4	10-20	---	2-5	X	---	5-10	---
Bluebunch wheatgrass	AGSP	5-15	2-5	5-10	---	---	---	---
Idaho fescue	FEID	5-15	10-30	30-60	X	---	---	---
Nevada bluegrass	PONE3	2-5	---	2-5	---	---	---	5-15
Letterman needlegrass	STLE4	2-5	---	---	---	---	---	---
Spike-fescue	HEKI	2-5	---	---	---	---	---	---
Bluegrass	POA++	---	5-15	---	---	---	2-10	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Slender wheatgrass	AGTR	---	---	---	X	---	5-10	---
Sedge	CAREX	---	---	---	---	---	2-10	1-5
Western needlegrass	STOC2	---	---	---	---	---	2-10	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-15	2-8	2-10	X	---	5-15	15-20
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Hawksbeard	CREPI	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	X	---	---	---
Geranium	GERAN	---	---	---	X	---	---	---
Lupine	LUPIN	---	---	---	X	---	---	---
Other perennial forbs	PPFF	2-5	5-10	2-5	X	---	2-10	5-10
Antelope bitterbrush	PUTR2	5-15	---	2-5	---	---	---	---
Mountain big sagebrush	ARTRV	5-10	---	2-5	---	---	---	---
Snowberry	SYMPH	2-5	---	2-5	X	---	2-5	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Common chokecherry	PRVI	---	---	---	---	---	2-5	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-5	1-8	2-5	X	---	2-10	2-5
Quaking aspen	POTR5	---	---	---	X	---	5-10	---
Range site number		O25X016N	O25X024N	O25X010N	O25X065N	None	O25X002N	O25X003N
Potential production (lb/acre):								
Favorable years		2,000	350	1,400	800	---	800	2,500
Normal years		1,400	250	1,000	600	---	500	1,900
Unfavorable years		1,000	150	700	400	---	300	1,200

923.--Bullump-Cleavage-Tusel association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bullump	Cleavage	Tusel	1	2	3	4
Basin wildrye	ELCI2	10-20	---	---	---	---	---	---
Mountain brome	BRMA4	10-20	---	5-15	5-15	2-5	---	5-10
Bluebunch wheatgrass	AGSP	5-15	2-5	2-5	2-5	5-10	---	---
Idaho fescue	FEID	5-15	10-30	2-10	2-10	30-60	---	---
Nevada bluegrass	PONE3	2-5	---	2-5	2-5	2-5	---	---
Letterman needlegrass	STLE4	2-5	---	2-5	2-5	---	60-70	---
Spike-fescue	HEKI	2-5	---	2-10	2-10	---	---	---
Bluegrass	POA++	---	5-15	---	---	---	---	2-10
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Slender wheatgrass	AGTR	---	---	5-15	5-15	---	2-5	5-10
Cusick bluegrass	POCU3	---	---	---	---	2-5	---	---
Columbia needlegrass	STCO3	---	---	---	---	---	2-5	2-10
Sedge	CAREX	---	---	---	---	---	---	2-10
Western needlegrass	STOC2	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-15	2-8	5-15	5-15	2-10	2-5	5-15
Tapertip hawksbeard	CRAC2	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	---	2-5	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Geranium	GERAN	---	---	2-10	2-10	---	---	---
Groundsel	SENEC	---	---	2-10	2-10	---	---	---
Hawksbeard	CREPI	---	---	---	---	2-5	---	---
Tailcup lupine	LUCA	---	---	---	---	---	20-40	---
Other perennial forbs	PPFF	2-5	5-10	5-15	5-15	2-5	---	2-10
Antelope bitterbrush	PUTR2	5-15	---	2-5	2-5	2-5	---	---
Mountain big sagebrush	ARTRV	5-10	---	---	---	2-5	---	---
Snowberry	SYMPH	2-5	---	2-10	2-10	2-5	---	2-5
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Common chokecherry	PRVI	---	---	---	---	---	---	2-5
Other shrubs	SSSS	2-5	1-8	2-10	2-10	2-5	---	2-10
Quaking aspen	POTR5	---	---	---	---	---	---	5-10
Range site number		O25X016N	O25X024N	O25X004N	O25X004N	O25X010N	O25X028N	O25X002N
Potential production (lb/acre):								
Favorable years		2,000	350	2,600	2,600	1,400	1,000	800
Normal years		1,400	250	1,800	1,800	1,000	800	500
Unfavorable years		1,000	150	1,400	1,400	700	500	300

925.--Bullump-Quarz-Gando association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bullump	Quarz	Gando	1	2	3	4
Basin wildrye	ELCI2	10-20	5-10	---	30-50	5-10	---	---
Mountain brome	BRMA4	10-20	---	---	5-15	---	---	---
Bluebunch wheatgrass	AGSP	5-15	30-50	2-5	---	30-50	15-30	---
Idaho fescue	FEID	5-15	2-5	10-30	15-30	2-5	30-50	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	2-5	---	---
Letterman needlegrass	STLE4	2-5	---	---	---	---	---	---
Spike-fescue	HEKI	2-5	---	---	---	---	---	---
Thurber needlegrass	STTH2	---	2-10	---	---	2-10	---	---
Bluegrass	POA++	---	---	5-15	---	---	2-10	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	2-5	---
Big bluegrass	POAM	---	---	---	5-10	---	---	---
Bulbous oniongrass	MEBU	---	---	---	5-10	---	---	---
Other perennial grasses	PPGG	5-15	5-10	2-8	5-15	5-10	5-15	---
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	---	2-5	---	---
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---	2-5	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-5	2-5	5-10	10-20	2-5	5-20	---
Antelope bitterbrush	PUTR2	5-15	2-15	---	---	2-15	1-10	---
Mountain big sagebrush	ARTRV	5-10	5-10	---	2-5	5-10	---	---
Snowberry	SYMPH	2-5	---	---	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-25	---
Other shrubs	SSSS	2-5	2-10	1-8	2-10	2-10	5-15	---
Range site number		O25X016N	O25X009N	O25X024N	O25X029N	O25X009N	O25X017N	None
Potential production (lb/acre):								
Favorable years		2,000	1,300	350	2,000	1,300	1,000	---
Normal years		1,400	900	250	1,700	900	700	---
Unfavorable years		1,000	700	150	1,300	700	400	---

926.--Bullump-Pernty-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bullump	Pernty	Cleavage	1	2	3	4
Basin wildrye	ELCI2	10-20	2-10	---	---	---	---	5-15
Mountain brome	BRMA4	10-20	---	---	X	---	---	---
Bluebunch wheatgrass	AGSP	5-15	15-30	2-5	---	---	---	---
Idaho fescue	FEID	5-15	15-40	10-30	X	---	---	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	---	---	40-60
Letterman needlegrass	STLE4	2-5	---	---	---	60-70	---	---
Spike-fescue	HEKI	2-5	---	---	---	---	---	---
Thurber needlegrass	STTH2	---	1-10	---	---	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Slender wheatgrass	AGTR	---	---	---	X	2-5	---	---
Columbia needlegrass	STCO3	---	---	---	---	2-5	---	---
Alpine timothy	PHAL2	---	---	---	---	---	---	20-40
Sedge	CAREX	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-10	2-8	X	2-5	---	2-8
Tapertip hawksbeard	CRAC2	2-5	1-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	2-5	5-10	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	X	---	---	---
Geranium	GERAN	---	---	---	X	---	---	---
Lupine	LUPIN	---	---	---	X	---	---	---
Tailcup lupine	LUCA	---	---	---	---	20-40	---	---
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-5	5-15	5-10	X	---	---	2-10
Antelope bitterbrush	PUTR2	5-15	5-15	---	---	---	---	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	---	---	---	---
Snowberry	SYMPH	2-5	---	---	X	---	---	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Other shrubs	SSSS	2-5	5-15	1-8	X	---	---	2-5
Quaking aspen	POTR5	---	---	---	X	---	---	---

Range site number	O25X016N	O25X012N	O25X024N	O25X065N	O25X028N	None	O25X006N
Potential production (lb/acre):							
Favorable years	2,000	1,200	350	800	1,000	---	1,600
Normal years	1,400	900	250	600	800	---	1,300
Unfavorable years	1,000	600	150	400	500	---	800

970.--Izod, steep-Wedekind-Izod association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Izod, steep	Wedekind	Izod	1	2	3
Indian ricegrass	ORHY	10-15	---	10-15	---	---	---
Thurber needlegrass	STTH2	10-15	15-25	10-15	---	15-25	---
Bluegrass	POA++	2-10	---	2-10	2-10	---	---
Bluebunch wheatgrass	AGSP	---	15-25	---	15-40	15-25	---
Idaho fescue	FEID	---	---	---	20-40	---	15-30
Basin wildrye	ELCI2	---	---	---	2-5	---	30-50
Big bluegrass	POAM	---	---	---	---	---	5-10
Bulbous oniongrass	MEBU	---	---	---	---	---	5-10
Mountain brome	BRMA4	---	---	---	---	---	5-15
Other perennial grasses	PPGG	5-20	10-20	5-20	2-10	10-20	5-15
Globemallow	SPHAE	2-5	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	2-5	2-5	---
Phlox	PHLOX	---	2-5	---	---	2-5	---
Other perennial forbs	PPFF	2-10	5-15	2-10	2-10	5-15	10-20
Black sagebrush	ARARN	25-35	---	25-35	---	---	---
Big sagebrush	ARTR2	---	5-10	---	5-15	5-10	---
Antelope bitterbrush	PUTR2	---	2-5	---	1-5	2-5	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Mountain big sagebrush	ARTRV	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	2-8	5-15	---	2-8	2-10
Range site number		O24X030N	O25X021N	O24X030N	O25X027N	O25X021N	O25X029N
Potential production (lb/acre):							
Favorable years		500	500	500	1,300	500	2,000
Normal years		350	400	350	900	400	1,700
Unfavorable years		250	250	250	600	250	1,300

971.--Izod-Porrone association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Izod	Porrone	1	2	3	4
Indian ricegrass	ORHY	10-15	2-10	---	---	---	---
Thurber needlegrass	STTH2	10-15	10-40	1-10	---	---	2-10
Bluegrass	POA++	2-10	2-10	---	---	5-15	---
Bluebunch wheatgrass	AGSP	---	10-40	15-30	---	2-5	30-50
Basin wildrye	ELCI2	---	5-15	2-10	---	---	5-10
Webber ricegrass	ORWE	---	2-10	---	---	5-10	---
Idaho fescue	FEID	---	---	15-40	---	10-30	2-5
Nevada bluegrass	PONE3	---	---	2-5	---	---	2-5
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-20	2-15	5-10	---	2-8	5-10
Globemallow	SPHAE	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	1-5	---	2-5	2-5
Goldenweed	HAPLO2	---	---	---	---	2-5	---
Phlox	PHLOX	---	---	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	5-15	---	5-10	2-5
Black sagebrush	ARARN	25-35	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	5-10
Antelope bitterbrush	PUTR2	---	---	5-15	---	---	2-15
Sagebrush (low or black)	ARTEM	---	---	---	---	15-25	---
Other shrubs	SSSS	5-15	5-15	5-15	---	1-8	2-10
Range site number		O24X030N	O25X019N	O25X012N	None	O25X024N	O25X009N
Potential production (lb/acre):							
Favorable years		500	800	1,200	---	350	1,300
Normal years		350	600	900	---	250	900
Unfavorable years		250	400	600	---	150	700

972.--Izod-Porrone-Chiara association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Izod	Porrone	Chiara	1	2	3	4
Indian ricegrass	ORHY	10-15	2-10	2-10	X	X	---	10-30
Thurber needlegrass	STTH2	10-15	10-40	10-40	X	X	---	---
Bluegrass	POA++	2-10	2-10	2-10	X	X	---	---
Bluebunch wheatgrass	AGSP	---	10-40	10-40	X	X	---	---
Basin wildrye	ELCI2	---	5-15	5-15	---	---	---	---
Webber ricegrass	ORWE	---	2-10	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-20	2-15	2-15	X	X	---	10-20
Globemallow	SPHAE	2-5	2-5	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	---	X	X	---	---
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	X	X	---	5-15
Black sagebrush	ARARN	25-35	---	---	---	X	---	5-15
Big sagebrush	ARTR2	---	10-15	10-15	X	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	X	---	---	1-5
Downy rabbitbrush	CHVIP	---	---	---	---	X	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	---	1-5
Purple sage	SACA9	---	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	X	X	---	2-4
Utah juniper	JUOS	---	---	---	X	X	---	---

Range site number	O24X030N	O25X019N	O25X019N	O25X059N	O25X060N	None	O25X025N
Potential production (lb/acre):							
Favorable years	500	800	800	500	400	---	200
Normal years	350	600	600	350	275	---	150
Unfavorable years	250	400	400	200	150	---	100

973.--Izod, extremely gravelly-Izod-Rock outcrop association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Izod, extremely gravelly	Izod	Rock outcrop	1	2	3	4
Indian ricegrass	ORHY	10-15	10-15	---	X	2-10	2-10	X
Thurber needlegrass	STTH2	10-15	10-15	---	X	10-40	10-40	X
Bluegrass	POA++	2-10	2-10	---	X	2-10	2-10	X
Bluebunch wheatgrass	AGSP	---	---	---	X	10-40	10-40	X
Basin wildrye	ELCI2	---	---	---	---	5-15	5-15	---
Webber ricegrass	ORWE	---	---	---	---	2-10	2-10	---
Other perennial grasses	PPGG	5-20	5-20	---	X	2-15	2-15	X
Globemallow	SPHAE	2-5	2-5	---	---	2-5	2-5	---
Tapertip hawksbeard	CRAC2	---	---	---	X	---	---	X
Arrowleaf balsamroot	BASA3	---	---	---	X	---	---	X
Other perennial forbs	PPFF	2-10	2-10	---	X	2-10	2-10	X
Black sagebrush	ARARN	25-35	25-35	---	---	---	---	---
Big sagebrush	ARTR2	---	---	---	X	10-15	10-15	X
Antelope bitterbrush	PUTR2	---	---	---	X	---	---	X
Other shrubs	SSSS	5-15	5-15	---	X	5-15	5-15	X
Utah juniper	JUOS	---	---	---	X	---	---	X
Range site number		O24X030N	O24X030N	None	O25X059N	O25X019N	O25X019N	O25X059N
Potential production (lb/acre):								
Favorable years		500	500	---	500	800	800	500
Normal years		350	350	---	350	600	600	350
Unfavorable years		250	250	---	200	400	400	200

990.--Eboda-Hart Camp-Cotant association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Eboda	Hart Camp	Cotant	1	2	3	4
Idaho fescue	FEID	20-40	20-40	30-50	2-5	---	---	---
Bluebunch wheatgrass	AGSP	15-40	15-40	15-30	30-50	10-40	---	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	---	---
Basin wildrye	ELCI2	2-5	2-5	---	5-10	5-15	50-60	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	---	---	2-5	---	5-15	---
Thurber needlegrass	STTH2	---	---	---	2-10	10-40	---	---
Indian ricegrass	ORHY	---	---	---	---	2-10	---	---
Webber ricegrass	ORWE	---	---	---	---	2-10	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	2-10	2-10	5-15	5-10	2-15	15-20	---
Arrowleaf balsamroot	BASA3	2-5	2-5	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-10	2-10	5-20	2-5	2-10	5-10	---
Big sagebrush	ARTR2	5-15	5-15	---	---	10-15	---	---
Rabbitbrush	CHRYS9	2-5	2-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	1-5	1-10	2-15	---	---	---
Low sagebrush	ARAR8	---	---	10-25	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	5-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	---	---	5-15	2-10	5-15	2-5	---

Range site number	O25X027N	O25X027N	O25X017N	O25X009N	O25X019N	O25X003N	None
Potential production (lb/acre):							
Favorable years	1,300	1,300	1,000	1,300	800	2,500	---
Normal years	900	900	700	900	600	1,900	---
Unfavorable years	600	600	400	700	400	1,200	---

992.--Eboda-Loncan-Leevan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Eboda	Loncan	Leevan	1	2	3	4
Idaho fescue	FEID	20-40	15-40	30-50	2-5	---	---	---
Bluebunch wheatgrass	AGSP	15-40	15-30	15-30	30-50	---	---	---
Bluegrass	POA++	2-10	---	2-10	---	---	---	---
Basin wildrye	ELCI2	2-5	2-10	---	5-10	50-60	---	---
Nevada bluegrass	PONE3	---	2-5	---	2-5	5-15	---	5-10
Thurber needlegrass	STTH2	---	1-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Mat muhly	MURI	---	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	---	1-5	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-10	5-10	5-15	5-10	15-20	---	2-10
Arrowleaf balsamroot	BASA3	2-5	5-10	---	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	---	2-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	5-15	5-20	2-5	5-10	---	10-20
Big sagebrush	ARTR2	5-15	---	---	---	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	5-15	1-10	2-15	---	---	---
Mountain big sagebrush	ARTRV	---	10-15	---	5-10	---	---	---
Low sagebrush	ARAR8	---	---	10-25	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Other shrubs	SSSS	---	5-15	5-15	2-10	2-5	---	2-5

Range site number	O25X027N	O25X012N	O25X017N	O25X009N	O25X003N	None	025X005N
Potential production (lb/acre):							
Favorable years	1,300	1,200	1,000	1,300	2,500	---	2,000
Normal years	900	900	700	900	1,900	---	1,700
Unfavorable years	600	600	400	700	1,200	---	1,000

993.--Eboda-Quarz-Loncan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Eboda	Quarz	Loncan	1	2	3	4
Idaho fescue	FEID	20-40	2-5	15-40	15-40	---	---	---
Bluebunch wheatgrass	AGSP	15-40	30-50	15-30	15-30	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	2-5	5-10	2-10	2-10	---	50-60	50-60
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	---	5-15	5-15
Thurber needlegrass	STTH2	---	2-10	1-10	1-10	---	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	2-10
Sedge	CAREX	---	---	---	---	---	1-5	1-5
Other perennial grasses	PPGG	2-10	5-10	5-10	5-10	---	15-20	15-20
Arrowleaf balsamroot	BASA3	2-5	2-5	5-10	5-10	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	1-5	1-5	---	---	---
Other perennial forbs	PPFF	2-10	2-5	5-15	5-15	---	5-10	5-10
Big sagebrush	ARTR2	5-15	---	---	---	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	2-15	5-15	5-15	---	---	---
Mountain big sagebrush	ARTRV	---	5-10	10-15	10-15	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	10-15
Other shrubs	SSSS	---	2-10	5-15	5-15	---	2-5	2-5
Range site number		O25X027N	O25X009N	O25X012N	O25X012N	None	O25X003N	025X003N
Potential production (lb/acre):								
Favorable years		1,300	1,300	1,200	1,200	---	2,500	2,500
Normal years		900	900	900	900	---	1,900	1,900
Unfavorable years		600	700	600	600	---	1,200	1,200

1230.--Fulstone-Hunnton association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Fulstone	Hunnton	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	10-40	---	40-80	20-30	---
Thurber needlegrass	STTH2	15-40	10-40	---	5-15	15-25	---
Webber ricegrass	ORWE	5-15	2-10	---	---	---	---
Bluegrass	POA++	5-10	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	5-15	50-60	2-5	---	---
Indian ricegrass	ORHY	---	2-10	---	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Nevada bluegrass	PONE3	---	---	5-15	---	2-10	5-10
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Sedge	CAREX	---	---	1-5	---	---	5-10
Mat muhly	MURI	---	---	2-10	---	---	---
Other perennial grasses	PPGG	1-10	2-15	15-20	2-10	10-15	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---
Globemallow	SPHAE	---	2-5	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	---	---	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-10	2-10	5-10	2-10	2-5	10-20
Low sagebrush	ARAR8	15-25	---	---	---	---	---
Big sagebrush	ARTR2	---	10-15	---	2-10	10-15	---
Basin big sagebrush	ARTRT*	---	---	10-15	---	---	---
Antelope bitterbrush	PUTR2	---	---	---	1-10	1-10	---
Other shrubs	SSSS	5-15	5-15	2-5	2-8	5-10	2-5

Range site number	O25X018N	O25X019N	O25X003N	O25X015N	O25X014N	O25X005N
Potential production (lb/acre):						
Favorable years	800	800	2,500	1,000	1,000	2,000
Normal years	600	600	1,900	700	800	1,700
Unfavorable years	400	400	1,200	500	600	1,000

1231.--Fulstone-Dacker-Wieland association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Fulstone	Dacker	Wieland	1	2
Bluebunch wheatgrass	AGSP	15-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	15-40	10-40	10-40	10-40	10-40
Webber ricegrass	ORWE	5-15	2-10	2-10	2-10	2-10
Bluegrass	POA++	5-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Basin wildrye	ELCI2	---	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	---	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	1-10	2-15	2-15	2-15	2-15
Balsamroot	BALSA	2-5	---	---	---	---
Globemallow	SPHAE	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	5-10	2-10	2-10	2-10	2-10
Low sagebrush	ARAR8	15-25	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O25X018N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	800	800	800
Normal years		600	600	600	600	600
Unfavorable years		400	400	400	400	400

1232.--Fulstone-Dacker-Yuko association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Fulstone	Dacker	Yuko	1	2
Bluebunch wheatgrass	AGSP	15-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	15-40	10-40	10-40	10-40	10-40
Webber ricegrass	ORWE	5-15	2-10	2-10	2-10	2-10
Bluegrass	POA++	5-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Basin wildrye	ELCI2	---	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	---	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	1-10	2-15	2-15	2-15	2-15
Balsamroot	BALSA	2-5	---	---	---	---
Globemallow	SPHAE	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	5-10	2-10	2-10	2-10	2-10
Low sagebrush	ARAR8	15-25	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O25X018N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	800	800	800
Normal years		600	600	600	600	600
Unfavorable years		400	400	400	400	400

1234.--Fulstone-Igdell-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Fulstone	Igdell	McIvey	1	2	3	4
Bluebunch wheatgrass	AGSP	15-40	15-30	15-30	---	15-30	40-80	---
Thurber needlegrass	STTH2	15-40	---	1-10	---	---	5-15	---
Webber ricegrass	ORWE	5-15	---	---	---	---	---	---
Bluegrass	POA++	5-10	2-10	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	2-5	---	---
Idaho fescue	FEID	---	30-50	15-40	---	30-50	---	---
Basin wildrye	ELCI2	---	---	2-10	---	---	2-5	---
Nevada bluegrass	PONE3	---	---	2-5	5-10	---	---	5-10
Tufted hairgrass	DECA5	---	---	---	30-60	---	---	30-60
Alpine timothy	PHAL2	---	---	---	5-10	---	---	5-10
Sedge	CAREX	---	---	---	5-10	---	---	5-10
Indian ricegrass	ORHY	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	1-10	5-15	5-10	2-10	5-15	2-10	2-10
Balsamroot	BALSA	2-5	2-5	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	2-5	---
Sierra clover	TRWO	---	---	---	2-5	---	---	2-5
Cinquefoil	POTEN	---	---	---	2-5	---	---	2-5
Other perennial forbs	PPFF	5-10	5-20	5-15	10-20	5-20	2-10	10-20
Low sagebrush	ARAR8	15-25	10-25	---	---	10-25	---	---
Antelope bitterbrush	PUTR2	---	1-10	5-15	---	1-10	1-10	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	---	---
Big sagebrush	ARTR2	---	---	---	---	---	2-10	---
Other shrubs	SSSS	5-15	5-15	5-15	2-5	5-15	2-8	2-5
Range site number		O25X018N	O25X017N	O25X012N	O25X005N	O25X017N	O25X015N	O25X005N
Potential production (lb/acre):								
Favorable years		800	1,000	1,200	2,000	1,000	1,000	2,000
Normal years		600	700	900	1,700	700	700	1,700
Unfavorable years		400	400	600	1,000	400	500	1,000

1270.--Wieland-Dacker-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wieland	Dacker	Puett	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	200	800	800	800
Normal years		600	600	150	600	600	600
Unfavorable years		400	400	100	400	400	400

1271.--Wieland-Enko association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Wieland	Enko	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	800
Normal years		600	600	600	600	600	600
Unfavorable years		400	400	400	400	400	400

1272.--Wieland-Gance-Dacker association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wieland	Gance	Dacker	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	10-30
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	---	5-10
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	10-20
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	5-15
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5
Spiny hopsage	GRSP	---	---	---	---	---	1-5
Antelope bitterbrush	PUTR2	---	---	---	---	---	1-5
Black sagebrush	ARARN	---	---	---	---	---	5-15
Purple sage	SACA9	---	---	---	---	---	1-5
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	2-4
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X025N
Potential production (lb/acre):							
Favorable years		800	800	800	800	800	200
Normal years		600	600	600	600	600	150
Unfavorable years		400	400	400	400	400	100

1273.--Wieland-Bilbo-Tustell association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wieland	Bilbo	Tustell	1	2	3
Bluebunch wheatgrass	AGSP	10-40	40-80	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	5-15	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	2-5	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-5	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	---	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	---	2-10	2-10	2-10	2-10
Other perennial grasses	PPGG	2-15	2-10	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	---	2-5	2-5	2-5	2-5
Tapertip hawksbeard	CRAC2	---	2-5	---	---	---	---
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	2-10	10-15	10-15	10-15	10-15
Antelope bitterbrush	PUTR2	---	1-10	---	---	---	---
Other shrubs	SSSS	5-15	2-8	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X015N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):							
Favorable years		800	1,000	800	800	800	800
Normal years		600	700	600	600	600	600
Unfavorable years		400	500	400	400	400	400

1274.--Wieland-Tuffo-Chiara association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Wieland	Tuffo	Chiara	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	40-80	10-40	20-30	40-80	10-40	15-25
Thurber needlegrass	STTH2	10-40	5-15	10-40	15-25	5-15	10-40	15-25
Basin wildrye	ELCI2	5-15	2-5	5-15	---	2-5	5-15	---
Indian ricegrass	ORHY	2-10	2-5	2-10	---	2-5	2-10	---
Webber ricegrass	ORWE	2-10	---	2-10	---	---	2-10	---
Bluegrass	POA++	2-10	---	2-10	---	---	2-10	---
Nevada bluegrass	PONE3	---	---	---	2-10	---	---	---
Other perennial grasses	PPGG	2-15	2-10	2-15	10-15	2-10	2-15	10-20
Globemallow	SPHAE	2-5	---	2-5	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	---	2-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---	2-5
Phlox	PHLOX	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-5	2-10	2-10	5-15
Big sagebrush	ARTR2	10-15	2-10	10-15	10-15	2-10	10-15	5-10
Antelope bitterbrush	PUTR2	---	1-10	---	1-10	1-10	---	2-5
Other shrubs	SSSS	5-15	2-8	5-15	5-10	2-8	5-15	2-8
Range site number		O25X019N	O25X015N	O25X019N	O25X014N	O25X015N	O25X019N	O25X021N
Potential production (lb/acre):								
Favorable years		800	1,000	800	1,000	1,000	800	500
Normal years		600	700	600	800	700	600	400
Unfavorable years		400	500	400	600	500	400	250

1276.--Wieland-Chiara-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Wieland	Chiara	Puett	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10	2-10	2-10
Bluegrass	POA++	2-10	2-10	---	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---	---	---
Black sagebrush	ARARN	---	---	5-15	---	---	---	---
Purple sage	SACA9	---	---	1-5	---	---	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15	5-15	5-15
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N	O25X019N	O25X019N
Potential production (lb/acre):								
Favorable years		800	800	200	800	800	800	800
Normal years		600	600	150	600	600	600	600
Unfavorable years		400	400	100	400	400	400	400

1277.--Wieland-Hunnton-Tustell association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Wieland	Hunnton	Tustell	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	10-40	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	10-40	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	5-15	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	2-10	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	2-10	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10	---
Nevada bluegrass	PONE3	---	---	---	---	---	---	40-60
Alpine timothy	PHAL2	---	---	---	---	---	---	20-40
Sedge	CAREX	---	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	2-15	2-15	2-8
Globemallow	SPHAE	2-5	2-5	2-5	2-5	2-5	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-10	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	10-15	10-15	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15	5-15	2-5
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X019N	O25X006N
Potential production (lb/acre):								
Favorable years		800	800	800	800	800	800	1,600
Normal years		600	600	600	600	600	600	1,300
Unfavorable years		400	400	400	400	400	400	800

1278.--Wieland-Kelk-Wieland, moderately steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Wieland	Kelk	Wieland, moderately steep	1	2	3	4
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	---	---	10-40	---
Thurber needlegrass	STTH2	10-40	10-40	10-40	---	---	10-40	---
Basin wildrye	ELCI2	5-15	5-15	5-15	50-60	50-60	5-15	---
Indian ricegrass	ORHY	2-10	2-10	2-10	---	---	2-10	---
Webber ricegrass	ORWE	2-10	2-10	2-10	---	---	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	---	---	2-10	---
Nevada bluegrass	PONE3	---	---	---	5-15	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	2-10	---	---
Sedge	CAREX	---	---	---	1-5	1-5	---	---
Other perennial grasses	PPGG	2-15	2-15	2-15	15-20	15-20	2-15	---
Globemallow	SPHAE	2-5	2-5	2-5	---	---	2-5	---
Other perennial forbs	PPFF	2-10	2-10	2-10	5-10	5-10	2-10	---
Big sagebrush	ARTR2	10-15	10-15	10-15	---	---	10-15	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	10-15	---	---
Other shrubs	SSSS	5-15	5-15	5-15	2-5	2-5	5-15	---
Range site number		O25X019N	O25X019N	O25X019N	O25X003N	O25X003N	O25X019N	None
Potential production (lb/acre):								
Favorable years		800	800	800	2,500	2,500	800	---
Normal years		600	600	600	1,900	1,900	600	---
Unfavorable years		400	400	400	1,200	1,200	400	---

1279.--Wieland-Kelk-Puett association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Wieland	Kelk	Puett	1	2
Bluebunch wheatgrass	AGSP	10-40	10-40	---	10-40	10-40
Thurber needlegrass	STTH2	10-40	10-40	---	10-40	10-40
Basin wildrye	ELCI2	5-15	5-15	---	5-15	5-15
Indian ricegrass	ORHY	2-10	2-10	10-30	2-10	2-10
Webber ricegrass	ORWE	2-10	2-10	---	2-10	2-10
Bluegrass	POA++	2-10	2-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	5-10	---	---
Other perennial grasses	PPGG	2-15	2-15	10-20	2-15	2-15
Globemallow	SPHAE	2-5	2-5	---	2-5	2-5
Other perennial forbs	PPFF	2-10	2-10	5-15	2-10	2-10
Big sagebrush	ARTR2	10-15	10-15	---	10-15	10-15
Downy rabbitbrush	CHVIP	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	1-5	---	---
Antelope bitterbrush	PUTR2	---	---	1-5	---	---
Black sagebrush	ARARN	---	---	5-15	---	---
Purple sage	SACA9	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	10-25	---	---
Other shrubs	SSSS	5-15	5-15	2-4	5-15	5-15
Range site number		O25X019N	O25X019N	O25X025N	O25X019N	O25X019N
Potential production (lb/acre):						
Favorable years		800	800	200	800	800
Normal years		600	600	150	600	600
Unfavorable years		400	400	100	400	400

1280.--Wieland-Zevadez-Gance association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wieland	Zevadez	Gance	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	50-60	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	---	2-10
Nevada bluegrass	PONE3	---	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	15-20	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	5-10	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	10-15
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-5	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O25X003N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	2,500	800
Normal years		600	600	600	600	1,900	600
Unfavorable years		400	400	400	400	1,200	400

1281.--Wieland-Tustell-Tustell, moderately steep association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Wieland	Tustell	Tustell, moderately steep	1	2	3
Bluebunch wheatgrass	AGSP	10-40	10-40	10-40	10-40	---	10-40
Thurber needlegrass	STTH2	10-40	10-40	10-40	10-40	---	10-40
Basin wildrye	ELCI2	5-15	5-15	5-15	5-15	50-60	5-15
Indian ricegrass	ORHY	2-10	2-10	2-10	2-10	---	2-10
Webber ricegrass	ORWE	2-10	2-10	2-10	2-10	---	2-10
Bluegrass	POA++	2-10	2-10	2-10	2-10	---	2-10
Western wheatgrass	AGSM	---	---	---	---	5-15	---
Other perennial grasses	PPGG	2-15	2-15	2-15	2-15	5-20	2-15
Globemallow	SPHAE	2-5	2-5	2-5	2-5	---	2-5
Other perennial forbs	PPFF	2-10	2-10	2-10	2-10	2-8	2-10
Big sagebrush	ARTR2	10-15	10-15	10-15	10-15	---	10-15
Basin big sagebrush	ARTRT*	---	---	---	---	15-20	---
Black greasewood	SAVE4	---	---	---	---	2-10	---
Rubber rabbitbrush	CHNA2	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	1-4	5-15
Range site number		O25X019N	O25X019N	O25X019N	O25X019N	O24X006N	O25X019N
Potential production (lb/acre):							
Favorable years		800	800	800	800	1,500	800
Normal years		600	600	600	600	1,100	600
Unfavorable years		400	400	400	400	600	400

1631.--Hackwood-Hapgood-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Hackwood	Hapgood	Cleavage	1	2
Mountain brome	BRMA4	X	5-15	---	---	---
Slender wheatgrass	AGTR	X	5-15	---	---	---
Idaho fescue	FEID	X	2-10	10-30	15-40	---
Spike-fescue	HEKI	---	2-10	---	---	---
Bluebunch wheatgrass	AGSP	---	2-5	2-5	15-30	---
Nevada bluegrass	PONE3	---	2-5	---	2-5	---
Letterman needlegrass	STLE4	---	2-5	---	---	---
Bluegrass	POA++	---	---	5-15	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	---	2-10	---
Thurber needlegrass	STTH2	---	---	---	1-10	---
Other perennial grasses	PPGG	X	5-15	2-8	5-10	---
Horsemint	MONAR	X	---	---	---	---
Geranium	GERAN	X	2-10	---	---	---
Lupine	LUPIN	X	---	---	---	---
Other perennial forbs	PPFF	X	5-15	5-10	5-15	---
Groundsel	SENEC	---	2-10	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---
Phlox	PHLOX	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	1-5	---
Arrowleaf balsamroot	BASA3	---	---	---	5-10	---
Snowberry	SYMPH	X	2-10	---	---	---
Other shrubs	SSSS	X	2-10	1-8	5-15	---
Antelope bitterbrush	PUTR2	---	2-5	---	5-15	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---
Quaking aspen	POTR5	X	---	---	---	---

Range site number	O25X065N	O25X004N	O25X024N	O25X012N	None
Potential production (lb/acre):					
Favorable years	800	2,600	350	1,200	---
Normal years	600	1,800	250	900	---
Unfavorable years	400	1,400	150	600	---

1662.--Susie Creek-Kleckner-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Susie Creek	Kleckner	Quarz	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	20-30	20-30	15-30	10-40	---	15-30
Thurber needlegrass	STTH2	15-25	15-25	15-25	---	10-40	---	1-10
Nevada bluegrass	PONE3	2-10	2-10	2-10	---	---	5-15	2-5
Idaho fescue	FEID	---	---	---	30-50	---	---	15-40
Bluegrass	POA++	---	---	---	2-10	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---	---
Basin wildrye	ELCI2	---	---	---	---	5-15	50-60	2-10
Indian ricegrass	ORHY	---	---	---	---	2-10	---	---
Webber ricegrass	ORWE	---	---	---	---	2-10	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	10-15	10-15	10-15	5-15	2-15	15-20	5-10
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	---	---	---	1-5
Arrowleaf balsamroot	BASA3	2-5	2-5	2-5	---	---	---	5-10
Balsamroot	BALSA	---	---	---	2-5	---	---	---
Globemallow	SPHAE	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	2-5	2-5	5-20	2-10	5-10	5-15
Big sagebrush	ARTR2	10-15	10-15	10-15	---	10-15	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	---	---	5-15
Low sagebrush	ARAR8	---	---	---	10-25	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Mountain big sagebrush	ARTRV	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-10	5-10	5-10	5-15	5-15	2-5	5-15
Range site number		O25X014N	O25X014N	O25X014N	O25X017N	O25X019N	O25X003N	O25X012N
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,000	1,000	800	2,500	1,200
Normal years		800	800	800	700	600	1,900	900
Unfavorable years		600	600	600	400	400	1,200	600

1663.--Susie Creek-Akler-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Susie Creek	Akler	Eboda	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	15-40	15-40	40-80	---	---	---
Thurber needlegrass	STTH2	15-25	15-40	---	5-15	---	---	---
Nevada bluegrass	PONE3	2-10	---	---	---	5-15	---	5-10
Webber ricegrass	ORWE	---	5-15	---	---	---	---	---
Bluegrass	POA++	---	5-10	2-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Idaho fescue	FEID	---	---	20-40	---	---	---	---
Basin wildrye	ELCI2	---	---	2-5	2-5	50-60	---	---
Mat muhly	MURI	---	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	---	1-5	---	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Indian ricegrass	ORHY	---	---	---	2-5	---	---	---
Other perennial grasses	PPGG	10-15	1-10	2-10	2-10	15-20	---	2-10
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	---	---	---	---
Balsamroot	BALSA	---	2-5	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-5	5-10	2-10	2-10	5-10	---	10-20
Big sagebrush	ARTR2	10-15	---	5-15	2-10	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-5	1-10	---	---	---
Low sagebrush	ARAR8	---	15-25	---	---	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Other shrubs	SSSS	5-10	5-15	---	2-8	2-5	---	2-5

Range site number	O25X014N	O25X018N	O25X027N	O25X015N	O25X003N	None	O25X005N
Potential production (lb/acre):							
Favorable years	1,000	800	1,300	1,000	2,500	---	1,000
Normal years	800	600	900	700	1,900	---	700
Unfavorable years	600	400	600	500	1,200	---	500

1664.--Susie Creek-Akler-Yuko association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Susie Creek	Akler	Yuko	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	15-40	40-80	X	15-40	---	---
Thurber needlegrass	STTH2	15-25	15-40	5-15	X	15-40	---	---
Nevada bluegrass	PONE3	2-10	---	---	---	---	5-15	5-15
Webber ricegrass	ORWE	---	5-15	---	---	5-15	---	---
Bluegrass	POA++	---	5-10	---	X	5-10	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	2-5	---	---	50-60	50-60
Indian ricegrass	ORHY	---	---	2-5	X	---	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	2-10
Sedge	CAREX	---	---	---	---	---	1-5	1-5
Other perennial grasses	PPGG	10-15	1-10	2-10	X	1-10	15-20	15-20
Tapertip hawksbeard	CRAC2	2-5	---	2-5	X	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	---	X	---	---	---
Balsamroot	BALSA	---	2-5	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-10	2-10	X	5-10	5-10	5-10
Big sagebrush	ARTR2	10-15	---	2-10	X	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	X	---	---	---
Low sagebrush	ARAR8	---	15-25	---	---	15-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	10-15
Other shrubs	SSSS	5-10	5-15	2-8	X	5-15	2-5	2-5
Utah juniper	JUOS	---	---	---	X	---	---	---

Range site number	O25X014N	O25X018N	O25X015N	O25X059N	O25X018N	O25X003N	O25X003N
Potential production (lb/acre):							
Favorable years	1,000	800	1,000	500	800	2,500	2,500
Normal years	800	600	700	350	600	1,900	1,900
Unfavorable years	600	400	500	200	400	1,200	1,200

1721.--Quarz-Quarz, sloping-Arcia association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	Quarz, sloping	Arcia	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	20-30	15-30	15-30	---	15-30	10-40
Basin wildrye	ELCI2	5-10	---	2-10	2-10	50-60	---	5-15
Idaho fescue	FEID	2-5	---	15-40	15-40	---	30-50	---
Nevada bluegrass	PONE3	2-5	2-10	2-5	2-5	5-15	---	---
Thurber needlegrass	STTH2	2-10	15-25	1-10	1-10	---	---	10-40
Mat muhly	MURI	---	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	---	1-5	---	---
Bluegrass	POA++	---	---	---	---	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	---	---	---	---	2-5	---
Indian ricegrass	ORHY	---	---	---	---	---	---	2-10
Webber ricegrass	ORWE	---	---	---	---	---	---	2-10
Other perennial grasses	PPGG	5-10	10-15	5-10	5-10	15-20	5-15	2-15
Arrowleaf balsamroot	BASA3	2-5	2-5	5-10	5-10	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	1-5	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	---	2-5	---
Globemallow	SPHAE	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-5	2-5	5-15	5-15	5-10	5-20	2-10
Antelope bitterbrush	PUTR2	2-15	1-10	5-15	5-15	---	1-10	---
Mountain big sagebrush	ARTRV	5-10	---	10-15	10-15	---	---	---
Big sagebrush	ARTR2	---	10-15	---	---	---	---	10-15
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Low sagebrush	ARAR8	---	---	---	---	---	10-25	---
Other shrubs	SSSS	2-10	5-10	5-15	5-15	2-5	5-15	5-15
Range site number		O25X009N	O25X014N	O25X012N	O25X012N	O25X003N	O25X017N	O25X019N
Potential production (lb/acre):								
Favorable years		1,300	1,000	1,200	1,200	2,500	1,000	800
Normal years		900	800	900	900	1,900	700	600
Unfavorable years		700	600	600	600	1,200	400	400

1722.--Quarz-Pernty, moderately steep-Pernty association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Quarz	Pernty, moderately steep	Pernty	1	2	3
Bluebunch wheatgrass	AGSP	30-50	15-30	15-30	15-30	---	15-30
Basin wildrye	ELCI2	5-10	2-10	2-10	---	50-60	2-10
Idaho fescue	FEID	2-5	15-40	15-40	30-50	---	15-40
Nevada bluegrass	PONE3	2-5	2-5	2-5	---	5-15	2-5
Thurber needlegrass	STTH2	2-10	1-10	1-10	---	---	1-10
Bluegrass	POA++	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-10	5-10	5-10	5-15	15-20	5-10
Arrowleaf balsamroot	BASA3	2-5	5-10	5-10	---	---	5-10
Tapertip hawksbeard	CRAC2	2-5	1-5	1-5	---	---	1-5
Balsamroot	BALSA	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	5-15	5-15	5-20	5-10	5-15
Antelope bitterbrush	PUTR2	2-15	5-15	5-15	1-10	---	5-15
Mountain big sagebrush	ARTRV	5-10	10-15	10-15	---	---	10-15
Low sagebrush	ARAR8	---	---	---	10-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	2-10	5-15	5-15	5-15	2-5	5-15
Range site number		O25X009N	O25X012N	O25X012N	O25X017N	O25X003N	O25X012N
Potential production (lb/acre):							
Favorable years		1,300	1,200	1,200	1,000	2,500	1,200
Normal years		900	900	900	700	1,900	900
Unfavorable years		700	600	600	400	1,200	600

1724.--Quarz-McIvey-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	McIvey	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	15-30	15-30	---	15-40	2-5	---
Basin wildrye	ELCI2	5-10	2-10	---	---	2-5	---	50-60
Idaho fescue	FEID	2-5	15-40	30-50	---	20-40	2-10	---
Nevada bluegrass	PONE3	2-5	2-5	---	---	---	2-5	5-15
Thurber needlegrass	STTH2	2-10	1-10	---	---	---	---	---
Bluegrass	POA++	---	---	2-10	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Mountain brome	BRMA4	---	---	---	---	---	5-15	---
Slender wheatgrass	AGTR	---	---	---	---	---	5-15	---
Spike-fescue	HEKI	---	---	---	---	---	2-10	---
Letterman needlegrass	STLE4	---	---	---	---	---	2-5	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	5-10	5-15	---	2-10	5-15	15-20
Arrowleaf balsamroot	BASA3	2-5	5-10	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	2-5	1-5	---	---	2-5	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---	---
Geranium	GERAN	---	---	---	---	---	2-10	---
Groundsel	SENEC	---	---	---	---	---	2-10	---
Other perennial forbs	PPFF	2-5	5-15	5-20	---	2-10	5-15	5-10
Antelope bitterbrush	PUTR2	2-15	5-15	1-10	---	1-5	2-5	---
Mountain big sagebrush	ARTRV	5-10	10-15	---	---	---	---	---
Low sagebrush	ARAR8	---	---	10-25	---	---	---	---
Big sagebrush	ARTR2	---	---	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---	---
Snowberry	SYMPH	---	---	---	---	---	2-10	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	2-10	5-15	5-15	---	---	2-10	2-5
Range site number		O25X009N	O25X012N	O25X017N	None	O25X027N	O25X004N	O25X003N
Potential production (lb/acre):								
Favorable years		1,300	1,200	1,000	---	1,300	2,600	2,500
Normal years		900	900	700	---	900	1,800	1,900
Unfavorable years		700	600	400	---	600	1,400	1,200

1725.--Quarz-Cleavage-Loncan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	Cleavage	Loncan	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	15-30	---	15-30	---	5-10
Basin wildrye	ELCI2	5-10	---	2-10	---	2-10	5-15	---
Idaho fescue	FEID	2-5	10-30	15-40	---	15-40	---	30-60
Nevada bluegrass	PONE3	2-5	---	2-5	---	2-5	40-60	2-5
Thurber needlegrass	STTH2	2-10	---	1-10	---	1-10	---	---
Bluegrass	POA++	---	5-15	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---	---	---
Alpine timothy	PHAL2	---	---	---	---	---	20-40	---
Sedge	CAREX	---	---	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	---	---	5-15	---
Meadow barley	HOBR2	---	---	---	---	---	2-5	---
Mountain brome	BRMA4	---	---	---	---	---	---	2-5
Cusick bluegrass	POCU3	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-10	2-8	5-10	---	5-10	2-8	2-10
Arrowleaf balsamroot	BASA3	2-5	---	5-10	---	5-10	---	2-5
Tapertip hawksbeard	CRAC2	2-5	2-5	1-5	---	1-5	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Hawksbeard	CREPI	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	2-5	5-10	5-15	---	5-15	2-10	2-5
Antelope bitterbrush	PUTR2	2-15	---	5-15	---	5-15	---	2-5
Mountain big sagebrush	ARTRV	5-10	---	10-15	---	10-15	---	2-5
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Snowberry	SYMPH	---	---	---	---	---	---	2-5
Other shrubs	SSSS	2-10	1-8	5-15	---	5-15	2-5	2-5
Range site number		O25X009N	O25X024N	O25X012N	None	O25X012N	O25X006N	O25X010N
Potential production (lb/acre):								
Favorable years		1,300	350	1,200	---	1,200	1,600	1,400
Normal years		900	250	900	---	900	1,300	1,000
Unfavorable years		700	150	600	---	600	800	700

1727.--Quarz-Susie Creek-Loncan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	Susie Creek	Loncan	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	20-30	15-30	30-50	15-30	---	---
Thurber needlegrass	STTH2	15-25	15-25	1-10	2-10	---	---	---
Nevada bluegrass	PONE3	2-10	2-10	2-5	2-5	---	---	5-15
Idaho fescue	FEID	---	---	15-40	2-5	30-50	---	---
Basin wildrye	ELCI2	---	---	2-10	5-10	---	---	50-60
Bluegrass	POA++	---	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	10-15	10-15	5-10	5-10	5-15	---	15-20
Tapertip hawksbeard	CRAC2	2-5	2-5	1-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	2-5	2-5	5-10	2-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	2-5	5-15	2-5	5-20	---	5-10
Big sagebrush	ARTR2	10-15	10-15	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	2-15	1-10	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	5-10	---	---	---
Low sagebrush	ARAR8	---	---	---	---	10-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-10	5-10	5-15	2-10	5-15	---	2-5
Range site number		O25X014N	O25X014N	O25X012N	O25X009N	O25X017N	None	O25X003N
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,200	1,300	1,000	---	2,500
Normal years		800	800	900	900	700	---	1,900
Unfavorable years		600	600	600	700	400	---	1,200

1728.--Quarz-Cleavage-Tusel association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	Cleavage	Tusel	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	2-5	5-10	5-15	10-20	---	---
Basin wildrye	ELCI2	5-10	---	---	10-20	---	---	---
Idaho fescue	FEID	2-5	10-30	30-60	5-15	---	---	X
Nevada bluegrass	PONE3	2-5	---	2-5	2-5	---	---	---
Thurber needlegrass	STTH2	2-10	---	---	---	10-15	---	---
Bluegrass	POA++	---	5-15	---	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	2-5	---	---
Mountain brome	BRMA4	---	---	2-5	10-20	---	---	X
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Pine bluegrass	POSC	---	---	---	---	5-10	---	---
Indian ricegrass	ORHY	---	---	---	---	2-5	---	---
Letterman needlegrass	STLE4	---	---	---	2-5	---	---	---
Spike-fescue	HEKI	---	---	---	2-5	---	---	---
Slender wheatgrass	AGTR	---	---	---	---	---	---	X
Other perennial grasses	PPGG	5-10	2-8	2-10	5-15	1-5	---	X
Arrowleaf balsamroot	BASA3	2-5	---	2-5	2-5	---	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	---	2-5	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---	---
Hawksbeard	CREPI	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	---	---	---	X
Geranium	GERAN	---	---	---	---	---	---	X
Lupine	LUPIN	---	---	---	---	---	---	X
Other perennial forbs	PPFF	2-5	5-10	2-5	2-5	10-20	---	X
Antelope bitterbrush	PUTR2	2-15	---	2-5	5-15	---	---	---
Mountain big sagebrush	ARTRV	5-10	---	2-5	5-10	1-5	---	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---	---
Snowberry	SYMPH	---	---	2-5	2-5	1-5	---	X
Curlleaf mountainmahogany	CELE3	---	---	---	---	5-10	---	---
Other shrubs	SSSS	2-10	1-8	2-5	2-5	5-10	---	X
Quaking aspen	POTR5	---	---	---	---	---	---	X

Range site number	O25X009N	O25X024N	O25X010N	O25X016N	O28B042N	None	O25X065N
Potential production (lb/acre):							
Favorable years	1,300	350	1,400	2,000	900	---	800
Normal years	900	250	1,000	1,400	600	---	600
Unfavorable years	700	150	700	1,000	400	---	400

1729.--Quarz-Tusel-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Quarz	Tusel	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	30-50	5-10	2-5	---	30-50	15-30	---
Basin wildrye	ELCI2	5-10	---	---	---	5-10	2-10	---
Idaho fescue	FEID	2-5	30-60	10-30	---	2-5	15-40	X
Nevada bluegrass	PONE3	2-5	2-5	---	---	2-5	2-5	---
Thurber needlegrass	STTH2	2-10	---	---	---	2-10	1-10	---
Mountain brome	BRMA4	---	2-5	---	---	---	---	X
Cusick bluegrass	POCU3	---	2-5	---	---	---	---	---
Bluegrass	POA++	---	---	5-15	---	---	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Slender wheatgrass	AGTR	---	---	---	---	---	X	---
Other perennial grasses	PPGG	5-10	2-10	2-8	---	5-10	X	5-10
Arrowleaf balsamroot	BASA3	2-5	2-5	---	---	2-5	5-10	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	2-5	1-5	---
Hawksbeard	CREPI	---	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	---	---	---	X
Geranium	GERAN	---	---	---	---	---	---	X
Lupine	LUPIN	---	---	---	---	---	---	X
Other perennial forbs	PPFF	2-5	2-5	5-10	---	2-5	5-15	X
Antelope bitterbrush	PUTR2	2-15	2-5	---	---	2-15	5-15	---
Mountain big sagebrush	ARTRV	5-10	2-5	---	---	5-10	10-15	---
Snowberry	SYMPH	---	2-5	---	---	---	---	X
Sagebrush	ARTEM	---	---	15-25	---	---	---	---
Other shrubs	SSSS	2-10	2-5	1-8	---	2-10	5-15	X
Quaking aspen	POTR5	---	---	---	---	---	---	X
Range site number		O25X009N	O25X010N	O25X024N	None	O25X009N	O25X012N	O25X065N
Potential production (lb/acre):								
Favorable years		1,300	1,400	350	---	1,300	1,200	800
Normal years		900	1,000	250	---	900	900	600
Unfavorable years		700	700	150	---	700	600	400

1805.--Bregar-Sumine-Hapgood association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bregar	Sumine	Hapgood	1	2	3	4
Bluebunch wheatgrass	AGSP	10-20	30-50	2-5	---	15-25	15-30	---
Idaho fescue	FEID	10-20	2-5	2-10	---	2-10	15-40	---
Thurber needlegrass	STTH2	2-10	2-10	---	---	---	1-10	---
Bluegrass	POA++	2-10	---	---	---	---	---	---
Basin wildrye	ELCI2	---	5-10	---	---	2-10	2-10	---
Nevada bluegrass	PONE3	---	2-5	2-5	---	---	2-5	5-10
Mountain brome	BRMA4	---	---	5-15	---	2-10	---	---
Slender wheatgrass	AGTR	---	---	5-15	---	---	---	---
Spike-fescue	HEKI	---	---	2-10	---	---	---	---
Letterman needlegrass	STLE4	---	---	2-5	---	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	---	---	5-10
Other perennial grasses	PPGG	1-5	5-10	5-15	---	5-10	5-10	2-10
Arrowleaf balsamroot	BASA3	---	2-5	---	---	2-5	5-10	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	2-5	1-5	---
Geranium	GERAN	---	---	2-10	---	---	---	---
Groundsel	SENEC	---	---	2-10	---	---	---	---
Phlox	PHLOX	---	---	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	2-5	5-15	---	2-5	5-15	10-20
Low sagebrush	ARAR8	20-30	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	5-15	2-15	2-5	---	2-10	5-15	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	5-15	10-15	---
Snowberry	SYMPH	---	---	2-10	---	---	---	---
Serviceberry	AMELA	---	---	---	---	2-5	---	---
Other shrubs	SSSS	1-3	2-10	2-10	---	2-10	5-15	2-5
Range site number		O25X051N	O25X009N	O25X004N	None	O25X042N	O25X012N	O25X005N
Potential production (lb/acre):								
Favorable years		400	1,300	2,600	---	500	1,200	2,000
Normal years		300	900	1,800	---	400	900	1,700
Unfavorable years		200	700	1,400	---	250	600	1,000

1806.--Bregar-Graley-Chen association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Bregar	Graley	Chen	1	2
Bluebunch wheatgrass	AGSP	10-20	15-30	15-30	---	---
Idaho fescue	FEID	10-20	15-40	30-50	---	---
Thurber needlegrass	STTH2	2-10	1-10	---	---	---
Bluegrass	POA++	2-10	---	2-10	---	---
Basin wildrye	ELCI2	---	2-10	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	5-10
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	5-10
Sedge	CAREX	---	---	---	---	5-10
Other perennial grasses	PPGG	1-5	5-10	5-15	---	2-10
Arrowleaf balsamroot	BASA3	---	5-10	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	2-5
Other perennial forbs	PPFF	---	5-15	5-20	---	10-20
Low sagebrush	ARAR8	20-30	---	10-25	---	---
Antelope bitterbrush	PUTR2	5-15	5-15	1-10	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---
Mountain big sagebrush	ARTRV	---	10-15	---	---	---
Other shrubs	SSSS	1-3	5-15	5-15	---	2-5
Range site number		O25X051N	O25X012N	O25X017N	None	O25X005N
Potential production (lb/acre):						
Favorable years		400	1,200	1,000	---	2,000
Normal years		300	900	700	---	1,700
Unfavorable years		200	600	400	---	1,000

1807.--Bregar-Bregar, eroded-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Bregar	Bregar, eroded	McIvey	1	2	3	4
Idaho fescue	FEID	10-30	10-20	15-40	---	5-15	---	2-10
Bluegrass	POA++	5-15	2-10	---	---	---	---	---
Webber ricegrass	ORWE	5-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Bluebunch wheatgrass	AGSP	2-5	10-20	15-30	---	2-10	---	2-5
Thurber needlegrass	STTH2	---	2-10	1-10	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	---	5-15	---
Nevada bluegrass	PONE3	---	---	2-5	---	---	40-60	2-5
Alpine timothy	PHAL2	---	---	---	---	---	20-40	---
Sedge	CAREX	---	---	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	---	---	5-15	---
Meadow barley	HOBR2	---	---	---	---	---	2-5	---
Mountain brome	BRMA4	---	---	---	---	---	---	5-15
Slender wheatgrass	AGTR	---	---	---	---	---	---	5-15
Spike-fescue	HEKI	---	---	---	---	---	---	2-10
Letterman needlegrass	STLE4	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	2-8	1-5	5-10	---	5-20	2-8	5-15
Goldenweed	HAPLO2	2-5	---	---	---	---	---	---
Phlox	PHLOX	2-5	---	---	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	1-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Geranium	GERAN	---	---	---	---	---	---	2-10
Groundsel	SENEC	---	---	---	---	---	---	2-10
Other perennial forbs	PPFF	5-10	---	5-15	---	5-10	2-10	5-15
Sagebrush (low or black)	ARTEM	15-25	---	---	---	---	---	---
Low sagebrush	ARAR8	---	20-30	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	5-15	5-15	---	2-10	---	2-5
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	2-5	---	---
Serviceberry	AMELA	---	---	---	---	25-45	---	---
Snowberry	SYMPH	---	---	---	---	2-10	---	2-10
Other shrubs	SSSS	1-8	1-3	5-15	---	2-5	2-5	2-10
Range site number		O25X024N	O25X051N	O25X012N	None	O25X046N	O25X006N	O25X004N
Potential production (lb/acre):								
Favorable years		350	400	1,200	---	1,800	1,600	2,600
Normal years		250	300	900	---	1,300	1,300	1,800
Unfavorable years		150	200	600	---	900	800	1,400

1808.--Bregar-McIvey-Cotant association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Bregar	McIvey	Cotant	1	2	3
Bluebunch wheatgrass	AGSP	10-20	15-30	15-30	---	---	---
Idaho fescue	FEID	10-20	15-40	30-50	---	---	---
Thurber needlegrass	STTH2	2-10	1-10	---	---	---	---
Bluegrass	POA++	2-10	---	2-10	---	---	---
Basin wildrye	ELCI2	---	2-10	---	---	50-60	---
Nevada bluegrass	PONE3	---	2-5	---	---	5-15	5-10
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Other perennial grasses	PPGG	1-5	5-10	5-15	---	15-20	2-10
Arrowleaf balsamroot	BASA3	---	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---	---	---
Balsamroot	BALSA	---	---	2-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	---	5-15	5-20	---	5-10	10-20
Low sagebrush	ARAR8	20-30	---	10-25	---	---	---
Antelope bitterbrush	PUTR2	5-15	5-15	1-10	---	---	---
Douglas rabbitbrush	CHVI8	2-5	---	---	---	---	---
Mountain big sagebrush	ARTRV	---	10-15	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	1-3	5-15	5-15	---	2-5	2-5
Range site number		O25X051N	O25X012N	O25X017N	None	O25X003N	O25X005N
Potential production (lb/acre):							
Favorable years		400	1,200	1,000	---	2,500	2,000
Normal years		300	900	700	---	1,900	1,700
Unfavorable years		200	600	400	---	1,200	1,000

1821.--Cotant-McIvey-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cotant	McIvey	Quarz	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	30-50	10-20	5-10	---	---
Idaho fescue	FEID	30-50	15-40	2-5	10-20	30-60	---	---
Bluegrass	POA++	2-10	---	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	5-10	---	---	---	5-15
Nevada bluegrass	PONE3	---	2-5	2-5	---	2-5	5-10	40-60
Thurber needlegrass	STTH2	---	1-10	2-10	2-10	---	---	---
Mountain brome	BRMA4	---	---	---	---	2-5	---	---
Cusick bluegrass	POCU3	---	---	---	---	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	20-40
Sedge	CAREX	---	---	---	---	---	5-10	5-15
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-10	5-10	1-5	2-10	2-10	2-8
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	2-5	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	---	---	---	---
Hawksbeard	CREPI	---	---	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	2-5
Other perennial forbs	PPFF	5-20	5-15	2-5	---	2-5	10-20	2-10
Low sagebrush	ARAR8	10-25	---	---	20-30	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	2-15	5-15	2-5	---	---
Mountain big sagebrush	ARTRV	---	10-15	5-10	---	2-5	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---	---
Snowberry	SYMPH	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	2-10	1-3	2-5	2-5	2-5

Range site number	O25X017N	O25X012N	O25X009N	O25X051N	O25X010N	O25X005N	O25X006N
Potential production (lb/acre):							
Favorable years	1,000	1,200	1,300	400	1,400	2,000	1,600
Normal years	700	900	900	300	1,000	1,700	1,300
Unfavorable years	400	600	700	200	700	1,000	800

1822.--Cotant-Bregar-Donna association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cotant	Bregar	Donna	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-40	---	15-30	15-30
Idaho fescue	FEID	30-50	---	---	---	30-50	30-50
Bluegrass	POA++	2-10	2-10	5-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	3-7	2-5	---	2-5	2-5
Thurber needlegrass	STTH2	---	15-20	15-40	---	---	---
Webber ricegrass	ORWE	---	5-15	5-15	---	---	---
Basin wildrye	ELCI2	---	---	---	50-60	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	---
Other perennial grasses	PPGG	5-15	---	1-10	15-20	5-15	5-15
Balsamroot	BALSA	2-5	2-5	2-5	---	2-5	2-5
Phlox	PHLOX	---	2-5	---	---	---	---
Other perennial forbs	PPFF	5-20	2-10	5-10	5-10	5-20	5-20
Low sagebrush	ARAR8	10-25	15-25	15-25	---	10-25	10-25
Antelope bitterbrush	PUTR2	1-10	1-5	---	---	1-10	1-10
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	---	5-15	2-5	5-15	5-15
Range site number		O25X017N	O25X022N	O25X018N	O25X003N	O25X017N	O25X017N
Potential production (lb/acre):							
Favorable years		1,000	500	800	2,500	1,000	1,000
Normal years		700	375	600	1,900	700	700
Unfavorable years		400	250	400	1,200	400	400

1823.--Cotant-Kleckner-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cotant	Kleckner	McIvey	1	2	3
Bluebunch wheatgrass	AGSP	15-30	20-30	15-30	---	---	15-30
Idaho fescue	FEID	30-50	---	15-40	---	---	15-40
Bluegrass	POA++	2-10	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Thurber needlegrass	STTH2	---	15-25	1-10	---	---	1-10
Nevada bluegrass	PONE3	---	2-10	2-5	5-15	40-60	2-5
Basin wildrye	ELCI2	---	---	2-10	50-60	5-15	2-10
Mat muhly	MURI	---	---	---	2-10	5-15	---
Sedge	CAREX	---	---	---	1-5	5-15	---
Alpine timothy	PHAL2	---	---	---	---	20-40	---
Meadow barley	HOBR2	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-15	10-15	5-10	15-20	2-8	5-10
Balsamroot	BALSA	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	1-5	---	---	1-5
Arrowleaf balsamroot	BASA3	---	2-5	5-10	---	---	5-10
Cinquefoil	POTEN	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-20	2-5	5-15	5-10	2-10	5-15
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	---	---	5-15
Big sagebrush	ARTR2	---	10-15	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	10-15
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	5-10	5-15	2-5	2-5	5-15

Range site number	O25X017N	O25X014N	O25X012N	O25X003N	O25X006N	O25X012N
Potential production (lb/acre):						
Favorable years	1,000	1,000	1,200	2,500	1,600	1,200
Normal years	700	800	900	1,900	1,300	900
Unfavorable years	400	600	600	1,200	800	600

1824.--Cotant, moderately steep-Cotant-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cotant, moderately steep	Cotant	McIvey	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	10-20	---	---	---
Idaho fescue	FEID	30-50	30-50	15-40	10-20	---	---	---
Bluegrass	POA++	2-10	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	---	5-15	---
Nevada bluegrass	PONE3	---	---	2-5	---	5-10	40-60	---
Thurber needlegrass	STTH2	---	---	1-10	2-10	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	---	---
Alpine timothy	PHAL2	---	---	---	---	5-10	20-40	---
Sedge	CAREX	---	---	---	---	5-10	5-15	---
Mat muhly	MURI	---	---	---	---	---	5-15	---
Meadow barley	HOBR2	---	---	---	---	---	2-5	---
Letterman needlegrass	STLE4	---	---	---	---	---	---	60-70
Columbia needlegrass	STCO3	---	---	---	---	---	---	2-5
Slender wheatgrass	AGTR	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-15	5-10	1-5	2-10	2-8	2-5
Balsamroot	BALSA	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	2-5	---
Tailcup lupine	LUCA	---	---	---	---	---	---	20-40
Other perennial forbs	PPFF	5-20	5-20	5-15	---	10-20	2-10	---
Low sagebrush	ARAR8	10-25	10-25	---	20-30	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	5-15	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	5-15	5-15	1-3	2-5	2-5	---

Range site number	O25X017N	O25X017N	O25X012N	O25X051N	O25X005N	O25X006N	O25X028N
Potential production (lb/acre):							
Favorable years	1,000	1,000	1,200	400	2,000	1,600	1,000
Normal years	700	700	900	300	1,700	1,300	800
Unfavorable years	400	400	600	200	1,000	800	500

1825.--Cotant-Cotant, moderately steep-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cotant	Cotant, moderately steep	McIvey	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	10-20	15-30	---	---
Idaho fescue	FEID	30-50	30-50	15-40	10-20	15-40	---	---
Bluegrass	POA++	2-10	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	2-10	---	5-15
Nevada bluegrass	PONE3	---	---	2-5	---	2-5	5-10	40-60
Thurber needlegrass	STTH2	---	---	1-10	2-10	1-10	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	20-40
Sedge	CAREX	---	---	---	---	---	5-10	5-15
Mat muhly	MURI	---	---	---	---	---	---	5-15
Meadow barley	HOBR2	---	---	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-15	5-10	1-5	5-10	2-10	2-8
Balsamroot	BALSA	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	5-10	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	1-5	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	2-5
Other perennial forbs	PPFF	5-20	5-20	5-15	---	5-15	10-20	2-10
Low sagebrush	ARAR8	10-25	10-25	---	20-30	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	5-15	5-15	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	10-15	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	5-15	5-15	1-3	5-15	2-5	2-5
Range site number		O25X017N	O25X017N	O25X012N	O25X051N	O25X012N	O25X005N	O25X006N
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,200	400	1,200	2,000	1,600
Normal years		700	700	900	300	900	1,700	1,300
Unfavorable years		400	400	600	200	600	1,000	800

1826.--Cotant-Cotant, steep-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cotant	Cotant, steep	Eboda	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-40	15-30	---	---
Idaho fescue	FEID	30-50	30-50	20-40	15-40	---	---
Bluegrass	POA++	2-10	2-10	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Basin wildrye	ELCI2	---	---	2-5	2-10	50-60	---
Nevada bluegrass	PONE3	---	---	---	2-5	5-15	---
Thurber needlegrass	STTH2	---	---	---	1-10	---	---
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-15	5-15	2-10	5-10	15-20	---
Balsamroot	BALSA	2-5	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	5-10	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	1-5	---	---
Other perennial forbs	PPFF	5-20	5-20	2-10	5-15	5-10	---
Low sagebrush	ARAR8	10-25	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	5-15	---	---
Big sagebrush	ARTR2	---	---	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---	---
Mountain big sagebrush	ARTRV	---	---	---	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-15	---	5-15	2-5	---

Range site number	O25X017N	O25X017N	O25X027N	O25X012N	O25X003N	None
Potential production (lb/acre):						
Favorable years	1,000	1,000	1,300	1,200	2,500	---
Normal years	700	700	900	900	1,900	---
Unfavorable years	400	400	600	600	1,200	---

1828.--Cotant-Lerrow-Akler association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cotant	Lerrow	Akler	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	30-50	15-40	---	2-5	15-40	---
Idaho fescue	FEID	30-50	2-5	---	---	10-30	20-40	---
Bluegrass	POA++	2-10	---	5-10	---	5-15	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	2-5	---	---
Basin wildrye	ELCI2	---	5-10	---	5-15	---	2-5	---
Nevada bluegrass	PONE3	---	2-5	---	40-60	---	---	---
Thurber needlegrass	STTH2	---	2-10	15-40	---	---	---	---
Webber ricegrass	ORWE	---	---	5-15	---	5-10	---	---
Alpine timothy	PHAL2	---	---	---	20-40	---	---	---
Sedge	CAREX	---	---	---	5-15	---	---	---
Mat muhly	MURI	---	---	---	5-15	---	---	---
Meadow barley	HOBR2	---	---	---	2-5	---	---	---
Other perennial grasses	PPGG	5-15	5-10	1-10	2-8	2-8	2-10	---
Balsamroot	BALSA	2-5	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	2-5	2-5	---
Goldenweed	HAPLO2	---	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	5-20	2-5	5-10	2-10	5-10	2-10	---
Low sagebrush	ARAR8	10-25	---	15-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	2-15	---	---	---	1-5	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	15-25	---	---
Big sagebrush	ARTR2	---	---	---	---	---	5-15	---
Rabbitbrush	CHRYS9	---	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	2-10	5-15	2-5	1-8	---	---

Range site number	O25X017N	O25X009N	O25X018N	O25X006N	O25X024N	O25X027N	None
Potential production (lb/acre):							
Favorable years	1,000	1,300	800	1,600	350	1,300	---
Normal years	700	900	600	1,300	250	900	---
Unfavorable years	400	700	400	800	150	600	---

1829.--Cotant-McIvey-Rock outcrop association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cotant	McIvey	Rock outcrop	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	---	30-50	5-10	10-20
Idaho fescue	FEID	30-50	15-40	---	2-5	30-60	10-20
Bluegrass	POA++	2-10	---	---	---	---	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	---	5-10	---	---
Nevada bluegrass	PONE3	---	2-5	---	2-5	2-5	---
Thurber needlegrass	STTH2	---	1-10	---	2-10	---	2-10
Mountain brome	BRMA4	---	---	---	---	2-5	---
Cusick bluegrass	POCU3	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-15	5-10	---	5-10	2-10	1-5
Balsamroot	BALSA	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	2-5	2-5	---
Tapertip hawksbeard	CRAC2	---	1-5	---	2-5	---	---
Hawksbeard	CREPI	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-20	5-15	---	2-5	2-5	---
Low sagebrush	ARAR8	10-25	---	---	---	---	20-30
Antelope bitterbrush	PUTR2	1-10	5-15	---	2-15	2-5	5-15
Mountain big sagebrush	ARTRV	---	10-15	---	5-10	2-5	---
Snowberry	SYMPH	---	---	---	---	2-5	---
Douglas rabbitbrush	CHVI8	---	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	---	2-10	2-5	1-3
Range site number		O25X017N	O25X012N	None	O25X009N	025X010N	O25X051N
Potential production (lb/acre):							
Favorable years		1,000	1,200	---	1,300	1,400	400
Normal years		700	900	---	900	1,000	300
Unfavorable years		400	600	---	700	700	200

1830.--Cotant-McIvey-Shively association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cotant	McIvey	Shively	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	5-10	30-50	---	---	---
Idaho fescue	FEID	30-50	15-40	30-60	2-5	---	X	---
Bluegrass	POA++	2-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	---	5-10	50-60	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	5-15	---	---
Thurber needlegrass	STTH2	---	1-10	---	2-10	---	---	---
Mountain brome	BRMA4	---	---	2-5	---	---	X	---
Cusick bluegrass	POCU3	---	---	2-5	---	---	---	---
Mat muhly	MURI	---	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	---	1-5	---	---
Slender wheatgrass	AGTR	---	---	---	---	---	X	---
Other perennial grasses	PPGG	5-15	5-10	2-10	5-10	15-20	X	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	2-5	2-5	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	2-5	---	---	---
Hawksbeard	CREPI	---	---	2-5	---	---	---	---
Horsemint	MONAR	---	---	---	---	---	X	---
Geranium	GERAN	---	---	---	---	---	X	---
Lupine	LUPIN	---	---	---	---	---	X	---
Other perennial forbs	PPFF	5-20	5-15	2-5	2-5	5-10	X	---
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	2-5	2-15	---	---	---
Mountain big sagebrush	ARTRV	---	10-15	2-5	5-10	---	---	---
Snowberry	SYMPH	---	---	2-5	---	---	X	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	5-15	2-5	2-10	2-5	X	---
Quaking aspen	POTR5	---	---	---	---	---	X	---

Range site number	O25X017N	O25X012N	O25X010N	O25X009N	O25X003N	O25X065N	None
Potential production (lb/acre):							
Favorable years	1,000	1,200	1,400	1,300	2,500	800	---
Normal years	700	900	1,000	900	1,900	600	---
Unfavorable years	400	600	700	700	1,200	400	---

1831.--Cotant-McIvey-Welch association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Cotant	McIvey	Welch	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	---	15-40	---	30-50
Idaho fescue	FEID	30-50	15-40	---	20-40	---	2-5
Bluegrass	POA++	2-10	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	50-60	2-5	---	5-10
Nevada bluegrass	PONE3	---	2-5	5-15	---	---	2-5
Thurber needlegrass	STTH2	---	1-10	---	---	---	2-10
Mat muhly	MURI	---	---	2-10	---	---	---
Sedge	CAREX	---	---	1-5	---	---	---
Other perennial grasses	PPGG	5-15	5-10	15-20	2-10	---	5-10
Balsamroot	BALSA	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	2-5	---	2-5
Tapertip hawksbeard	CRAC2	---	1-5	---	2-5	---	2-5
Other perennial forbs	PPFF	5-20	5-15	5-10	2-10	---	2-5
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	---	1-5	---	2-15
Mountain big sagebrush	ARTRV	---	10-15	---	---	---	5-10
Basin big sagebrush	ARTRT*	---	---	10-15	---	---	---
Big sagebrush	ARTR2	---	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	2-5	---	---	2-10

Range site number	O25X017N	O25X012N	O25X003N	O25X027N	None	O25X009N
Potential production (lb/acre):						
Favorable years	1,000	1,200	2,500	1,300	---	1,300
Normal years	700	900	1,900	900	---	900
Unfavorable years	400	600	1,200	600	---	700

1875.--Chen-Ebic-Blackleg association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Chen	Ebic	Blackleg	1	2
Bluebunch wheatgrass	AGSP	15-30	15-30	15-40	10-20	15-30
Idaho fescue	FEID	30-50	30-50	20-40	---	30-50
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	2-5
Basin wildrye	ELCI2	---	---	2-5	---	---
Thurber needlegrass	STTH2	---	---	---	5-15	---
Indian ricegrass	ORHY	---	---	---	2-10	---
Other perennial grasses	PPGG	5-15	5-15	2-10	5-20	5-15
Balsamroot	BALSA	2-5	2-5	---	---	2-5
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	2-5	---
Other perennial forbs	PPFF	5-20	5-20	2-10	5-15	5-20
Low sagebrush	ARAR8	10-25	10-25	---	---	10-25
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	---	1-10
Big sagebrush	ARTR2	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Black sagebrush	ARARN	---	---	---	15-30	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15
Range site number		O25X017N	O25X017N	O25X027N	O24X031N	O25X017N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,300	700	1,000
Normal years		700	700	900	500	700
Unfavorable years		400	400	600	300	400

1876.--Chen-Ebic association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name		Inclusion number--		
		Chen	Ebic	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	15-30	15-25
Idaho fescue	FEID	30-50	30-50	30-50	30-50	15-30
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	2-5	---
Basin wildrye	ELCI2	---	---	---	---	2-5
Nevada bluegrass	PONE3	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	---	---	---	2-5
Other perennial grasses	PPGG	5-15	5-15	5-15	5-15	5-15
Balsamroot	BALSA	2-5	2-5	2-5	2-5	---
Other perennial forbs	PPFF	5-20	5-20	5-20	5-20	10-20
Low sagebrush	ARAR8	10-25	10-25	10-25	10-25	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	20-40
Mountain big sagebrush	ARTRV	---	---	---	---	2-10
Snowberry	SYMPH	---	---	---	---	2-5
Serviceberry	AMELA	---	---	---	---	2-5
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-8
Range site number		O25X017N	O25X017N	O25X017N	O25X017N	O25X007N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,000	1,000	1,600
Normal years		700	700	700	700	1,300
Unfavorable years		400	400	400	400	800

1877.--Chen-Bregar-Loncan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Chen	Bregar	Loncan	1	2	3
Bluebunch wheatgrass	AGSP	15-30	10-20	15-30	---	---	2-5
Idaho fescue	FEID	30-50	10-20	15-40	---	---	10-30
Bluegrass	POA++	2-10	2-10	---	---	---	5-15
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	2-10	1-10	---	---	---
Basin wildrye	ELCI2	---	---	2-10	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	---	5-10	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	5-10	---
Webber ricegrass	ORWE	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-15	1-5	5-10	---	2-10	2-8
Balsamroot	BALSA	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	---	2-5
Sierra clover	TRWO	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	2-5	---
Goldenweed	HAPLO2	---	---	---	---	---	2-5
Phlox	PHLOX	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	---	5-15	---	10-20	5-10
Low sagebrush	ARAR8	10-25	20-30	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	5-15	---	---	---
Douglas rabbitbrush	CHVI8	---	2-5	---	---	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	---	15-25
Other shrubs	SSSS	5-15	1-3	5-15	---	2-5	1-8

Range site number	O25X017N	O25X051N	O25X012N	None	O25X005N	O25X024N
Potential production (lb/acre):						
Favorable years	1,000	400	1,200	---	2,000	350
Normal years	700	300	900	---	1,700	250
Unfavorable years	400	200	600	---	1,000	150

1879.--Chen-Cotant-Arcia association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Cotant	Arcia	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	15-40	20-30	---	---
Idaho fescue	FEID	30-50	30-50	15-40	20-40	---	---	---
Bluegrass	POA++	2-10	2-10	---	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	---	2-10	2-5	---	50-60	---
Nevada bluegrass	PONE3	---	---	2-5	---	2-10	5-15	---
Thurber needlegrass	STTH2	---	---	1-10	---	15-25	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-15	5-15	5-10	2-10	10-15	15-20	---
Balsamroot	BALSA	2-5	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	---	5-10	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	2-5	2-5	---	---
Other perennial forbs	PPFF	5-20	5-20	5-15	2-10	2-5	5-10	---
Low sagebrush	ARAR8	10-25	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	5-15	1-5	1-10	---	---
Mountain big sagebrush	ARTRV	---	---	10-15	---	---	---	---
Big sagebrush	ARTR2	---	---	---	5-15	10-15	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-15	5-15	---	5-10	2-5	---
Range site number		O25X017N	O25X017N	O25X012N	O25X027N	O25X014N	O25X003N	None
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,200	1,300	1,000	2,500	---
Normal years		700	700	900	900	800	1,900	---
Unfavorable years		400	400	600	600	600	1,200	---

1880.--Chen-Arcia-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Arcia	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	2-5	15-40	15-30	---	---
Idaho fescue	FEID	30-50	15-40	10-30	20-40	15-40	---	---
Bluegrass	POA++	2-10	---	5-15	2-10	---	X	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	2-10	---	2-5	2-10	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	2-5	---	---
Thurber needlegrass	STTH2	---	1-10	---	---	1-10	---	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Streambank wheatgrass	AGRI	---	---	---	---	---	X	---
Tufted hairgrass	DECA5	---	---	---	---	---	X	---
Sedge	CAREX	---	---	---	---	---	X	---
Rush	JUNCU	---	---	---	---	---	X	---
Other perennial grasses	PPGG	5-15	5-10	2-8	2-10	5-10	X	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	2-5	5-10	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	2-5	1-5	---	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Other perennial forbs	PPFF	5-20	5-15	5-10	2-10	5-15	X	---
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	---	1-5	5-15	---	---
Mountain big sagebrush	ARTRV	---	10-15	---	---	10-15	---	---
Sagebrush	ARTEM	---	---	15-25	---	---	---	---
Sagebrush (low or black)	ARTR2	---	---	---	5-15	---	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---	---
Other shrubs	SSSS	5-15	5-15	1-8	---	5-15	X	---
Quaking aspen	POTR5	---	---	---	---	---	X	---

Range site number	O25X017N	O25X012N	O25X024N	O25X027N	O25X012N	O25X064N	None
Potential production (lb/acre):							
Favorable years	1,000	1,200	350	1,300	1,200	1,600	---
Normal years	700	900	250	900	900	1,300	---
Unfavorable years	400	600	150	600	600	1,000	---

1881.--Chen, moderately steep-Chen-Lerrow association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen, moderately steep	Chen	Lerrow	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	30-50	---	15-30	2-5	---
Idaho fescue	FEID	30-50	30-50	2-5	---	30-50	2-10	---
Bluegrass	POA++	2-10	2-10	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	2-5	---	---
Basin wildrye	ELCI2	---	---	5-10	50-60	---	---	---
Nevada bluegrass	PONE3	---	---	2-5	5-15	---	2-5	---
Thurber needlegrass	STTH2	---	---	2-10	---	---	---	---
Mat muhly	MURI	---	---	---	2-10	---	---	---
Sedge	CAREX	---	---	---	1-5	---	---	---
Mountain brome	BRMA4	---	---	---	---	---	5-15	---
Slender wheatgrass	AGTR	---	---	---	---	---	5-15	---
Spike-fescue	HEKI	---	---	---	---	---	2-10	---
Letterman needlegrass	STLE4	---	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-15	5-15	5-10	15-20	5-15	5-15	---
Balsamroot	BALSA	2-5	2-5	---	---	2-5	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---	---	---
Geranium	GERAN	---	---	---	---	---	2-10	---
Groundsel	SENEC	---	---	---	---	---	2-10	---
Other perennial forbs	PPFF	5-20	5-20	2-5	5-10	5-20	5-15	---
Low sagebrush	ARAR8	10-25	10-25	---	---	10-25	---	---
Antelope bitterbrush	PUTR2	1-10	1-10	2-15	---	1-10	2-5	---
Mountain big sagebrush	ARTRV	---	---	5-10	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---	---
Snowberry	SYMPH	---	---	---	---	---	2-10	---
Other shrubs	SSSS	5-15	5-15	2-10	2-5	5-15	2-10	---

Range site number	O25X017N	O25X017N	O25X009N	O25X003N	O25X017N	O25X004N	None
Potential production (lb/acre):							
Favorable years	1,000	1,000	1,300	2,500	1,000	2,600	---
Normal years	700	700	900	1,900	700	1,800	---
Unfavorable years	400	400	700	1,200	400	1,400	---

1882.--Chen-Lerrow-Cleavage association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Lerrow	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	30-50	15-30	---	---	---	---
Idaho fescue	FEID	30-50	2-5	30-50	---	---	X	---
Bluegrass	POA++	2-10	---	2-10	---	---	---	X
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	5-10	---	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	5-10	---	---
Thurber needlegrass	STTH2	---	2-10	---	---	---	---	---
Tufted hairgrass	DECA5	---	---	---	---	30-60	---	X
Alpine timothy	PHAL2	---	---	---	---	5-10	---	---
Sedge	CAREX	---	---	---	---	5-10	---	X
Mountain brome	BRMA4	---	---	---	---	---	X	---
Slender wheatgrass	AGTR	---	---	---	---	---	X	---
Streambank wheatgrass	AGRI	---	---	---	---	---	---	X
Rush	JUNCU	---	---	---	---	---	---	X
Other perennial grasses	PPGG	5-15	5-10	5-15	---	2-10	X	---
Balsamroot	BALSA	2-5	---	2-5	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	---	---	---	---
Sierra clover	TRWO	---	---	---	---	2-5	---	---
Cinquefoil	POTEN	---	---	---	---	2-5	---	---
Horsemint	MONAR	---	---	---	---	---	X	---
Geranium	GERAN	---	---	---	---	---	X	---
Lupine	LUPIN	---	---	---	---	---	X	---
Other perennial forbs	PPFF	5-20	2-5	5-20	---	10-20	X	---
Low sagebrush	ARAR8	10-25	---	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	2-15	1-10	---	---	---	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	---	---
Snowberry	SYMPH	---	---	---	---	---	X	---
Other shrubs	SSSS	5-15	2-10	5-15	---	2-5	X	---
Quaking aspen	POTR5	---	---	---	---	---	X	X
Range site number		O25X017N	O25X009N	O25X017N	None	O25X005N	O25X065N	O25X064N
Potential production (lb/acre):								
Favorable years		1,000	1,300	1,000	---	2,000	800	1,600
Normal years		700	900	700	---	1,700	600	1,300
Unfavorable years		400	700	400	---	1,000	400	1,000

1883.--Chen-Lerrow-Cotant association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Chen	Lerrow	Cotant	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-40	15-30	40-80	15-30	---
Idaho fescue	FEID	30-50	20-40	30-50	---	30-50	---
Bluegrass	POA++	2-10	2-10	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	2-5	---
Basin wildrye	ELCI2	---	2-5	---	2-5	---	50-60
Thurber needlegrass	STTH2	---	---	---	5-15	---	---
Indian ricegrass	ORHY	---	---	---	2-5	---	---
Nevada bluegrass	PONE3	---	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-15	2-10	5-15	2-10	5-15	15-20
Balsamroot	BALSA	2-5	---	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	---	2-5	---	---
Other perennial forbs	PPFF	5-20	2-10	5-20	2-10	5-20	5-10
Low sagebrush	ARAR8	10-25	---	10-25	---	10-25	---
Antelope bitterbrush	PUTR2	1-10	1-5	1-10	1-10	1-10	---
Big sagebrush	ARTR2	---	5-15	---	2-10	---	---
Rabbitbrush	CHRYS9	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	---	5-15	2-8	5-15	2-5
Range site number		O25X017N	O25X027N	O25X017N	O25X015N	O25X017N	O25X003N
Potential production (lb/acre):							
Favorable years		1,000	1,300	1,000	1,000	1,000	2,500
Normal years		700	900	700	700	700	1,900
Unfavorable years		400	600	400	500	400	1,200

1884.--Chen-Graley-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Graley	Cleavage	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	2-5	30-50	2-5	15-30	---
Idaho fescue	FEID	30-50	15-40	10-30	2-5	2-10	15-40	---
Bluegrass	POA++	2-10	---	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	---	---
Basin wildrye	ELCI2	---	2-10	---	5-10	---	2-10	50-60
Nevada bluegrass	PONE3	---	2-5	---	2-5	2-5	2-5	5-15
Thurber needlegrass	STTH2	---	1-10	---	2-10	---	1-10	---
Webber ricegrass	ORWE	---	---	5-10	---	---	---	---
Mountain brome	BRMA4	---	---	---	---	5-15	---	---
Slender wheatgrass	AGTR	---	---	---	---	5-15	---	---
Spike-fescue	HEKI	---	---	---	---	2-10	---	---
Letterman needlegrass	STLE4	---	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-15	5-10	2-8	5-10	5-15	5-10	15-20
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	---	2-5	---	5-10	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	2-5	---	1-5	---
Goldenweed	HAPLO2	---	---	2-5	---	---	---	---
Phlox	PHLOX	---	---	2-5	---	---	---	---
Geranium	GERAN	---	---	---	---	2-10	---	---
Groundsel	SENEC	---	---	---	---	2-10	---	---
Other perennial forbs	PPFF	5-20	5-15	5-10	2-5	5-15	5-15	5-10
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	---	2-15	2-5	5-15	---
Mountain big sagebrush	ARTRV	---	10-15	---	5-10	---	10-15	---
Sagebrush (low or black)	ARTEM	---	---	15-25	---	---	---	---
Snowberry	SYMPH	---	---	---	---	2-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	1-8	2-10	2-10	5-15	2-5

Range site number	O25X017N	O25X012N	O25X024N	O25X009N	O25X004N	O25X012N	O25X003N
Potential production (lb/acre):							
Favorable years	1,000	1,200	350	1,300	2,600	1,200	2,500
Normal years	700	900	250	900	1,800	900	1,900
Unfavorable years	400	600	150	700	1,400	600	1,200

1885.--Chen-Quarz-Linkup association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Quarz	Linkup	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	20-30	15-40	10-40	---	---	15-40
Idaho fescue	FEID	30-50	---	---	---	---	---	---
Bluegrass	POA++	2-10	---	5-10	2-10	---	---	5-10
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---	---	5-10	2-5
Thurber needlegrass	STTH2	---	15-25	15-40	10-40	---	---	15-40
Nevada bluegrass	PONE3	---	2-10	---	---	---	---	---
Webber ricegrass	ORWE	---	---	5-15	2-10	---	---	5-15
Basin wildrye	ELCI2	---	---	---	5-15	---	---	---
Indian ricegrass	ORHY	---	---	---	2-10	---	10-30	---
Other perennial grasses	PPGG	5-15	10-15	1-10	2-15	---	10-20	1-10
Balsamroot	BALSA	2-5	---	2-5	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---	---
Globemallow	SPHAE	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	5-20	2-5	5-10	2-10	---	5-15	5-10
Low sagebrush	ARAR8	10-25	---	15-25	---	---	---	15-25
Antelope bitterbrush	PUTR2	1-10	1-10	---	---	---	1-5	---
Big sagebrush	ARTR2	---	10-15	---	10-15	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	---	---	1-5	---
Spiny hopsage	GRSP	---	---	---	---	---	1-5	---
Black sagebrush	ARARN	---	---	---	---	---	5-15	---
Purple sage	SACA9	---	---	---	---	---	1-5	---
Wyoming big sagebrush	ARTRW*	---	---	---	---	---	10-25	---
Other shrubs	SSSS	5-15	5-10	5-15	5-15	---	2-4	5-15
Range site number		O25X017N	O25X014N	O25X018N	O25X019N	None	O25X025N	O25X018N
Potential production (lb/acre):								
Favorable years		1,000	1,000	800	800	---	200	800
Normal years		700	800	600	600	---	150	600
Unfavorable years		400	600	400	400	---	100	400

1886.--Chen-Cleavage-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Chen	Cleavage	Quarz	1	2	3
Bluebunch wheatgrass	AGSP	15-30	2-5	20-30	30-50	20-30	---
Idaho fescue	FEID	30-50	10-30	---	2-5	---	---
Bluegrass	POA++	2-10	5-15	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	2-5	---	---	---	---
Webber ricegrass	ORWE	---	5-10	---	---	---	---
Thurber needlegrass	STTH2	---	---	15-25	2-10	15-25	---
Nevada bluegrass	PONE3	---	---	2-10	2-5	2-10	5-15
Basin wildrye	ELCI2	---	---	---	5-10	---	50-60
Mat muhly	MURI	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-15	2-8	10-15	5-10	10-15	15-20
Balsamroot	BALSA	2-5	---	---	---	---	---
Goldenweed	HAPLO2	---	2-5	---	---	---	---
Phlox	PHLOX	---	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	---	2-5	2-5	2-5	---
Other perennial forbs	PPFF	5-20	5-10	2-5	2-5	2-5	5-10
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-10	2-15	1-10	---
Sagebrush (low or black)	ARTEM	---	15-25	---	---	---	---
Big sagebrush	ARTR2	---	---	10-15	---	10-15	---
Mountain big sagebrush	ARTRV	---	---	---	5-10	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	1-8	5-10	2-10	5-10	2-5
Range site number		O25X017N	O25X024N	O25X014N	O25X009N	O25X014N	O25X003N
Potential production (lb/acre):							
Favorable years		1,000	350	1,000	1,300	1,000	2,500
Normal years		700	250	800	900	800	1,900
Unfavorable years		400	150	600	700	600	1,200

1887.--Chen-Graley association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Chen	Graley	1	2
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	---
Idaho fescue	FEID	30-50	15-40	30-50	---
Bluegrass	POA++	2-10	---	2-10	---
Bottlebrush squirreltail	SIHY	2-5	---	2-5	---
Basin wildrye	ELCI2	---	2-10	---	---
Nevada bluegrass	PONE3	---	2-5	---	5-10
Thurber needlegrass	STTH2	---	1-10	---	---
Tufted hairgrass	DECA5	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	5-10
Sedge	CAREX	---	---	---	5-10
Other perennial grasses	PPGG	5-15	5-10	5-15	2-10
Balsamroot	BALSA	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	5-10	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---
Sierra clover	TRWO	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	2-5
Other perennial forbs	PPFF	5-20	5-15	5-20	10-20
Low sagebrush	ARAR8	10-25	---	10-25	---
Antelope bitterbrush	PUTR2	1-10	5-15	1-10	---
Mountain big sagebrush	ARTRV	---	10-15	---	---
Other shrubs	SSSS	5-15	5-15	5-15	2-5
Range site number		O25X017N	O25X012N	O25X017N	O25X005N
Potential production (lb/acre):					
Favorable years		1,000	1,200	1,000	2,000
Normal years		700	900	700	1,700
Unfavorable years		400	600	400	1,000

1888.--Chen-Graley-Quarz association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	Graley	Quarz	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	30-50	15-30	10-20	---	---
Idaho fescue	FEID	30-50	15-40	2-5	15-40	10-20	---	---
Bluegrass	POA++	2-10	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	5-10	2-10	---	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	---	5-10	---
Thurber needlegrass	STTH2	---	1-10	2-10	1-10	2-10	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-15	5-10	5-10	5-10	1-5	2-10	---
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	2-5	5-10	---	---	---
Tapertip hawksbeard	CRAC2	---	1-5	2-5	1-5	---	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-20	5-15	2-5	5-15	---	10-20	---
Low sagebrush	ARAR8	10-25	---	---	---	20-30	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	2-15	5-15	5-15	---	---
Mountain big sagebrush	ARTRV	---	10-15	5-10	10-15	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	2-10	5-15	1-3	2-5	---
Range site number		O25X017N	O25X012N	O25X009N	O25X012N	O25X051N	O25X005N	None
Potential production (lb/acre):								
Favorable years		1,000	1,200	1,300	1,200	400	2,000	---
Normal years		700	900	900	900	300	1,700	---
Unfavorable years		400	600	700	600	200	1,000	---

1889.--Chen-McIvey-Arcia association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Chen	McIvey	Arcia	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	5-10	---	30-50	---
Idaho fescue	FEID	30-50	15-40	15-40	30-60	---	2-5	---
Bluegrass	POA++	2-10	---	---	---	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---	---
Basin wildrye	ELCI2	---	2-10	2-10	---	---	5-10	50-60
Nevada bluegrass	PONE3	---	2-5	2-5	2-5	---	2-5	5-15
Thurber needlegrass	STTH2	---	1-10	1-10	---	---	2-10	---
Mountain brome	BRMA4	---	---	---	2-5	---	---	---
Cusick bluegrass	POCU3	---	---	---	2-5	---	---	---
Mat muhly	MURI	---	---	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	---	---	1-5
Other perennial grasses	PPGG	5-15	5-10	5-10	2-10	---	5-10	15-20
Balsamroot	BALSA	2-5	---	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	5-10	5-10	2-5	---	2-5	---
Tapertip hawksbeard	CRAC2	---	1-5	1-5	---	---	2-5	---
Hawksbeard	CREPI	---	---	---	2-5	---	---	---
Other perennial forbs	PPFF	5-20	5-15	5-15	2-5	---	2-5	5-10
Low sagebrush	ARAR8	10-25	---	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	5-15	5-15	2-5	---	2-15	---
Mountain big sagebrush	ARTRV	---	10-15	10-15	2-5	---	5-10	---
Snowberry	SYMPH	---	---	---	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	---	10-15
Other shrubs	SSSS	5-15	5-15	5-15	2-5	---	2-10	2-5
Range site number		O25X017N	O25X012N	O25X012N	O25X010N	None	O25X009N	O25X003N
Potential production (lb/acre):								
Favorable years		1,000	1,200	1,200	1,400	---	1,300	2,500
Normal years		700	900	900	1,000	---	900	1,900
Unfavorable years		400	600	600	700	---	700	1,200

1935.--Tweener-Tweener, moderately steep-Graley association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Tweener	Tweener, moderately steep	Graley	1	2	3	4
Idaho fescue	FEID	15-30	15-30	15-40	2-10	10-30	---	---
Bluebunch wheatgrass	AGSP	15-25	15-25	15-30	2-5	2-5	---	---
Basin wildrye	ELCI2	2-5	2-5	2-10	---	---	50-60	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	2-5	---	5-15	---
Thurber needlegrass	STTH2	2-5	2-5	1-10	---	---	---	---
Mountain brome	BRMA4	---	---	---	5-15	---	---	---
Slender wheatgrass	AGTR	---	---	---	5-15	---	---	---
Spike-fescue	HEKI	---	---	---	2-10	---	---	---
Letterman needlegrass	STLE4	---	---	---	2-5	---	---	---
Bluegrass	POA++	---	---	---	---	5-15	---	---
Webber ricegrass	ORWE	---	---	---	---	5-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Mat muhly	MURI	---	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	---	1-5	---
Other perennial grasses	PPGG	5-15	5-15	5-10	5-15	2-8	15-20	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	---	2-5	---	---
Geranium	GERAN	---	---	---	2-10	---	---	---
Groundsel	SENEC	---	---	---	2-10	---	---	---
Goldenweed	HAPLO2	---	---	---	---	2-5	---	---
Phlox	PHLOX	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	10-20	10-20	5-15	5-15	5-10	5-10	---
Antelope bitterbrush	PUTR2	20-40	20-40	5-15	2-5	---	---	---
Mountain big sagebrush	ARTRV	2-10	2-10	10-15	---	---	---	---
Snowberry	SYMPH	2-5	2-5	---	2-10	---	---	---
Serviceberry	AMELA	2-5	2-5	---	---	---	---	---
Sagebrush (low or black)	ARTEM	---	---	---	---	15-25	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	---	10-15	---
Other shrubs	SSSS	2-8	2-8	5-15	2-10	1-8	2-5	---

Range site number	O25X007N	O25X007N	O25X012N	O25X004N	O25X024N	O25X003N	None
Potential production (lb/acre):							
Favorable years	1,600	1,600	1,200	2,600	350	2,500	---
Normal years	1,300	1,300	900	1,800	250	1,900	---
Unfavorable years	800	800	600	1,400	150	1,200	---

1936.--Tweener-Tweener, moderately steep-McIvey association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Tweener	Tweener, moderately steep	McIvey	1	2	3	4
Idaho fescue	FEID	15-30	15-30	15-40	15-40	30-50	---	---
Bluebunch wheatgrass	AGSP	15-25	15-25	15-30	15-30	15-30	---	---
Basin wildrye	ELCI2	2-5	2-5	2-10	2-10	---	---	---
Nevada bluegrass	PONE3	2-5	2-5	2-5	2-5	---	5-10	---
Thurber needlegrass	STTH2	2-5	2-5	1-10	1-10	---	---	---
Bluegrass	POA++	---	---	---	---	2-10	---	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	5-15	5-15	5-10	5-10	5-15	2-10	---
Arrowleaf balsamroot	BASA3	---	---	5-10	5-10	---	---	---
Tapertip hawksbeard	CRAC2	---	---	1-5	1-5	---	---	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	10-20	10-20	5-15	5-15	5-20	10-20	---
Antelope bitterbrush	PUTR2	20-40	20-40	5-15	5-15	1-10	---	---
Mountain big sagebrush	ARTRV	2-10	2-10	10-15	10-15	---	---	---
Snowberry	SYMPH	2-5	2-5	---	---	---	---	---
Serviceberry	AMELA	2-5	2-5	---	---	---	---	---
Low sagebrush	ARAR8	---	---	---	---	10-25	---	---
Other shrubs	SSSS	2-8	2-8	5-15	5-15	5-15	2-5	---
Range site number		O25X007N	O25X007N	O25X012N	O25X012N	O25X017N	O25X005N	None
Potential production (lb/acre):								
Favorable years		1,600	1,600	1,200	1,200	1,000	2,000	---
Normal years		1,300	1,300	900	900	700	1,700	---
Unfavorable years		800	800	600	600	400	1,000	---

2010.--Rock outcrop-Pernty-Pernog association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Rock outcrop	Pernty	Pernog	1	2	3	4
Idaho fescue	FEID	---	15-40	---	10-20	2-5	---	2-10
Bluebunch wheatgrass	AGSP	---	15-30	10-20	10-20	30-50	---	2-5
Basin wildrye	ELCI2	---	2-10	---	---	5-10	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	2-5	5-10	2-5
Thurber needlegrass	STTH2	---	1-10	10-15	2-10	2-10	---	---
Pine bluegrass	POSC	---	---	5-10	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	2-5	---	---	---	---
Indian ricegrass	ORHY	---	---	2-5	---	---	---	---
Bluegrass	POA++	---	---	---	2-10	---	---	---
Mountain brome	BRMA4	---	---	---	---	---	---	5-15
Slender wheatgrass	AGTR	---	---	---	---	---	---	5-15
Spike-fescue	HEKI	---	---	---	---	---	---	2-10
Letterman needlegrass	STLE4	---	---	---	---	---	---	2-5
Tufted hairgrass	DECA5	---	---	---	---	---	30-60	---
Alpine timothy	PHAL2	---	---	---	---	---	5-10	---
Sedge	CAREX	---	---	---	---	---	5-10	---
Other perennial grasses	PPGG	---	5-10	1-5	1-5	5-10	2-10	5-15
Arrowleaf balsamroot	BASA3	---	5-10	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	1-5	---	---	2-5	---	---
Geranium	GERAN	---	---	---	---	---	---	2-10
Groundsel	SENEC	---	---	---	---	---	---	2-10
Sierra clover	TRWO	---	---	---	---	---	2-5	---
Cinquefoil	POTEN	---	---	---	---	---	2-5	---
Other perennial forbs	PPFF	---	5-15	10-20	---	2-5	10-20	5-15
Mountain big sagebrush	ARTRV	---	10-15	1-5	---	5-10	---	---
Antelope bitterbrush	PUTR2	---	5-15	---	5-15	2-15	---	2-5
Curlleaf mountainmahogany	CELE3	---	---	5-10	---	---	---	---
Snowberry	SYMPH	---	---	1-5	---	---	---	2-10
Low sagebrush	ARAR8	---	---	---	20-30	---	---	---
Douglas rabbitbrush	CHVI8	---	---	---	2-5	---	---	---
Other shrubs	SSSS	---	5-15	5-10	1-3	2-10	2-5	2-10

Range site number	None	O25X012N	O28B042N	O25X051N	O25X009N	O25X005N	O25X004N
Potential production (lb/acre):							
Favorable years	---	1,200	900	400	1,300	2,000	2,600
Normal years	---	900	600	300	900	1,700	1,800
Unfavorable years	---	600	400	200	700	1,000	1,400

2020.--Bobs Variant-Dewar association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on majcr soils and inclusions				
		Soil name		Inclusion number--		
		Bobs Variant	Dewar	1	2	3
Idaho fescue	FEID	15-40	---	---	---	---
Bluebunch wheatgrass	AGSP	15-30	10-40	10-40	10-20	---
Basin wildrye	ELCI2	2-10	5-15	5-15	---	50-60
Nevada bluegrass	PONE3	2-5	---	---	---	5-15
Thurber needlegrass	STTH2	1-10	10-40	10-40	5-15	---
Indian ricegrass	ORHY	---	2-10	2-10	2-10	---
Webber ricegrass	ORWE	---	2-10	2-10	---	---
Bluegrass	POA++	---	2-10	2-10	2-10	---
Mat muhly	MURI	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	1-5
Other perennial grasses	PPGG	5-10	2-15	2-15	5-20	15-20
Arrowleaf balsamroot	BASA3	5-10	---	---	---	---
Tapertip hawksbeard	CRAC2	1-5	---	---	2-5	---
Globemallow	SPHAE	---	2-5	2-5	---	---
Other perennial forbs	PPFF	5-15	2-10	2-10	5-15	5-10
Mountain big sagebrush	ARTRV	10-15	---	---	---	---
Antelope bitterbrush	PUTR2	5-15	---	---	---	---
Big sagebrush	ARTR2	---	10-15	10-15	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15
Black sagebrush	ARARN	---	---	---	15-30	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	2-5
Range site number		O25X012N	O25X019N	O25X019N	O24X031N	O25X003N
Potential production (lb/acre):						
Favorable years		1,200	800	800	700	2,500
Normal years		900	600	600	500	1,900
Unfavorable years		600	400	400	300	1,200

2031.--Shalcleav-Tweener association

(An X indicates that the named plant is in the potential native woodland understory and the percentage is highly variable. Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Shalcleav	Tweener	1	2	3	4
Thurber needlegrass	STTH2	20-30	2-5	2-10	---	---	---
Bluebunch wheatgrass	AGSP	10-20	15-25	30-50	---	---	---
Indian ricegrass	ORHY	2-10	---	---	---	---	---
Bluegrass	POA++	2-5	---	---	---	---	X
Idaho fescue	FEID	---	15-30	2-5	---	---	---
Basin wildrye	ELCI2	---	2-5	5-10	50-60	---	---
Nevada bluegrass	PONE3	---	2-5	2-5	5-15	---	---
Mat muhly	MURI	---	---	---	2-10	---	---
Sedge	CAREX	---	---	---	1-5	---	X
Streambank wheatgrass	AGRI	---	---	---	---	---	X
Tufted hairgrass	DECA5	---	---	---	---	---	X
Rush	JUNCU	---	---	---	---	---	X
Other perennial grasses	PPGG	5-20	5-15	5-10	15-20	---	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	---	---	---
Other perennial forbs	PPFF	5-15	10-20	2-5	5-10	---	---
Black sagebrush	ARARN	20-30	---	---	---	---	---
Antelope bitterbrush	PUTR2	---	20-40	2-15	---	---	---
Mountain big sagebrush	ARTRV	---	2-10	5-10	---	---	---
Snowberry	SYMPH	---	2-5	---	---	---	---
Serviceberry	AMELA	---	2-5	---	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	10-15	---	---
Other shrubs	SSSS	5-15	2-8	2-10	2-5	---	---
Quaking aspen	POTR5	---	---	---	---	---	X
Range site number		O25X057N	O25X007N	O25X009N	O25X003N	None	O25X064N
Potential production (lb/acre):							
Favorable years		700	1,600	1,300	2,500	---	1,600
Normal years		500	1,300	900	1,900	---	1,300
Unfavorable years		300	800	700	1,200	---	1,000

2040.--Cameek-Bilbo-Cameek, gently sloping association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions						
		Soil name			Inclusion number--			
		Cameek	Bilbo	Cameek, gently sloping	1	2	3	4
Bluebunch wheatgrass	AGSP	20-30	40-80	20-30	20-30	15-30	15-40	---
Thurber needlegrass	STTH2	15-25	5-15	15-25	15-25	---	---	---
Nevada bluegrass	PONE3	2-10	---	2-10	2-10	---	---	---
Basin wildrye	ELCI2	---	2-5	---	---	---	2-5	---
Indian ricegrass	ORHY	---	2-5	---	---	---	---	---
Idaho fescue	FEID	---	---	---	---	30-50	20-40	---
Bluegrass	POA++	---	---	---	---	2-10	2-10	---
Bottlebrush squirreltail	SIHY	---	---	---	---	2-5	---	---
Other perennial grasses	PPGG	10-15	2-10	10-15	10-15	5-15	2-10	---
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	2-5	---	2-5	2-5	---	2-5	---
Balsamroot	BALSA	---	---	---	---	2-5	---	---
Other perennial forbs	PPFF	2-5	2-10	2-5	2-5	5-20	2-10	---
Big sagebrush	ARTR2	10-15	2-10	10-15	10-15	---	5-15	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	1-10	1-5	---
Low sagebrush	ARAR8	---	---	---	---	10-25	---	---
Rabbitbrush	CHRYS9	---	---	---	---	---	2-5	---
Other shrubs	SSSS	5-10	2-8	5-10	5-10	5-15	---	---
Range site number		O25X014N	O25X015N	O25X014N	O25X014N	O25X017N	O25X027N	None
Potential production (lb/acre):								
Favorable years		1,000	1,000	1,000	1,000	1,000	1,300	---
Normal years		800	700	800	800	700	900	---
Unfavorable years		600	500	600	600	400	600	---

2070.--Heechee-Manard-Vitale association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Heechee	Manard	Vitale	1	2
Idaho fescue	FEID	15-30	30-50	15-40	30-50	20-40
Bluebunch wheatgrass	AGSP	15-25	15-30	15-30	15-30	15-40
Basin wildrye	ELCI2	2-5	---	2-10	---	2-5
Nevada bluegrass	PONE3	2-5	---	2-5	---	---
Thurber needlegrass	STTH2	2-5	---	1-10	---	---
Bluegrass	POA++	---	2-10	---	2-10	2-10
Bottlebrush squirreltail	SIHY	---	2-5	---	2-5	---
Other perennial grasses	PPGG	5-15	5-15	5-10	5-15	2-10
Balsamroot	BALSA	---	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	5-10	---	2-5
Tapertip hawksbeard	CRAC2	---	---	1-5	---	2-5
Other perennial forbs	PPFF	10-20	5-20	5-15	5-20	2-10
Antelope bitterbrush	PUTR2	20-40	1-10	5-15	1-10	1-5
Mountain big sagebrush	ARTRV	2-10	---	10-15	---	---
Snowberry	SYMPH	2-5	---	---	---	---
Serviceberry	AMELA	2-5	---	---	---	---
Low sagebrush	ARAR8	---	10-25	---	10-25	---
Big sagebrush	ARTR2	---	---	---	---	5-15
Rabbitbrush	CHRYS9	---	---	---	---	2-5
Other shrubs	SSSS	2-8	5-15	5-15	5-15	---
Range site number		O25X007N	O25X017N	O25X012N	O25X017N	O25X027N
Potential production (lb/acre):						
Favorable years		1,600	1,000	1,200	1,000	1,300
Normal years		1,300	700	900	700	900
Unfavorable years		800	400	600	400	600

2071.--Heechee-Heechee, very cobbly association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions		
		Soil name		Inclusion number--
		Heechee	Heechee, very cobbly	1
Idaho fescue	FEID	20-40	15-30	---
Bluebunch wheatgrass	AGSP	15-40	15-25	20-30
Bluegrass	POA++	2-10	---	---
Basin wildrye	ELCI2	2-5	2-5	---
Nevada bluegrass	PONE3	---	2-5	2-10
Thurber needlegrass	STTH2	---	2-5	15-25
Other perennial grasses	PPGG	2-10	5-15	10-15
Arrowleaf balsamroot	BASA3	2-5	---	2-5
Tapertip hawksbeard	CRAC2	2-5	---	2-5
Other perennial forbs	PPFF	2-10	10-20	2-5
Big sagebrush	ARTR2	5-15	---	10-15
Rabbitbrush	CHRYS9	2-5	---	---
Antelope bitterbrush	PUTR2	1-5	20-40	1-10
Mountain big sagebrush	ARTRV	---	2-10	---
Snowberry	SYMPH	---	2-5	---
Serviceberry	AMELA	---	2-5	---
Other shrubs	SSSS	---	2-8	5-10

Range site number	O25X027N	O25X007N	O25X014N
Potential production (lb/acre):			
Favorable years	1,300	1,600	1,000
Normal years	900	1,300	800
Unfavorable years	600	800	600

2080.--Igdell-Manard-Ebic association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Igdell	Manard	Ebic	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	15-30	15-40	15-30
Idaho fescue	FEID	30-50	30-50	30-50	30-50	20-40	30-50
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	2-5	---	2-5
Basin wildrye	ELCI2	---	---	---	---	2-5	---
Other perennial grasses	PPGG	5-15	5-15	5-15	5-15	2-10	5-15
Balsamroot	BALSA	2-5	2-5	2-5	2-5	---	2-5
Arrowleaf balsamroot	BASA3	---	---	---	---	2-5	---
Tapertip hawksbeard	CRAC2	---	---	---	---	2-5	---
Other perennial forbs	PPFF	5-20	5-20	5-20	5-20	2-10	5-20
Low sagebrush	ARAR8	10-25	10-25	10-25	10-25	---	10-25
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	1-5	1-10
Big sagebrush	ARTR2	---	---	---	---	5-15	---
Rabbitbrush	CHRYS9	---	---	---	---	2-5	---
Other shrubs	SSSS	5-15	5-15	5-15	5-15	---	5-15
Range site number		O25X017N	O25X017N	O25X017N	O25X017N	O25X027N	O25X017N
Potential production (lb/acre):							
Favorable years		1,000	1,000	1,000	1,000	1,300	1,000
Normal years		700	700	700	700	900	700
Unfavorable years		400	400	400	400	600	400

2081.--Igdell-Gance-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Igdell	Gance	Eboda	1	2
Bluebunch wheatgrass	AGSP	15-30	10-40	15-40	---	15-40
Idaho fescue	FEID	30-50	---	20-40	---	20-40
Bluegrass	POA++	2-10	2-10	2-10	---	2-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---
Thurber needlegrass	STTH2	---	10-40	---	---	---
Basin wildrye	ELCI2	---	5-15	2-5	50-60	2-5
Indian ricegrass	ORHY	---	2-10	---	---	---
Webber ricegrass	ORWE	---	2-10	---	---	---
Nevada bluegrass	PONE3	---	---	---	5-15	---
Mat muhly	MURI	---	---	---	2-10	---
Sedge	CAREX	---	---	---	1-5	---
Other perennial grasses	PPGG	5-15	2-15	2-10	15-20	2-10
Balsamroot	BALSA	2-5	---	---	---	---
Globemallow	SPHAE	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	2-5
Tapertip hawksbeard	CRAC2	---	---	2-5	---	2-5
Other perennial forbs	PPFF	5-20	2-10	2-10	5-10	2-10
Low sagebrush	ARAR8	10-25	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	---	1-5	---	1-5
Big sagebrush	ARTR2	---	10-15	5-15	---	5-15
Rabbitbrush	CHRYS9	---	---	2-5	---	2-5
Basin big sagebrush	ARTRT*	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-15	---	2-5	---
Range site number		O25X017N	O25X019N	O25X027N	O25X003N	O25X027N
Potential production (lb/acre):						
Favorable years		1,000	800	1,300	2,500	1,300
Normal years		700	600	900	1,900	900
Unfavorable years		400	400	600	1,200	600

2082.--Igdell-Shivlum association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Igdell	Shivlum	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	15-40	15-40	20-30	---	---
Idaho fescue	FEID	30-50	20-40	20-40	---	---	---
Bluegrass	POA++	2-10	2-10	2-10	---	---	---
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	---
Basin wildrye	ELCI2	---	2-5	2-5	---	50-60	---
Thurber needlegrass	STTH2	---	---	---	15-25	---	---
Nevada bluegrass	PONE3	---	---	---	2-10	5-15	5-10
Mat muhly	MURI	---	---	---	---	2-10	---
Sedge	CAREX	---	---	---	---	1-5	5-10
Tufted hairgrass	DECA5	---	---	---	---	---	30-60
Alpine timothy	PHAL2	---	---	---	---	---	5-10
Other perennial grasses	PPGG	5-15	2-10	2-10	10-15	15-20	2-10
Balsamroot	BALSA	2-5	---	---	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	2-5	2-5	---	---
Tapertip hawksbeard	CRAC2	---	2-5	2-5	2-5	---	---
Sierra clover	TRWO	---	---	---	---	---	2-5
Cinquefoil	POTEN	---	---	---	---	---	2-5
Other perennial forbs	PPFF	5-20	2-10	2-10	2-5	5-10	10-20
Low sagebrush	ARAR8	10-25	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-10	1-5	1-5	1-10	---	---
Big sagebrush	ARTR2	---	5-15	5-15	10-15	---	---
Rabbitbrush	CHRYS9	---	2-5	2-5	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	---	---	5-10	2-5	2-5
Range site number		O25X017N	O25X027N	O25X027N	O25X014N	O25X003N	O25X005N
Potential production (lb/acre):							
Favorable years		1,000	1,300	1,300	1,000	2,500	2,000
Normal years		700	900	900	800	1,900	1,700
Unfavorable years		400	600	600	600	1,200	1,000

2083.--Igdell-Kleckner association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name		Inclusion number--			
		Igdell	Kleckner	1	2	3	4
Bluebunch wheatgrass	AGSP	15-30	20-30	40-80	---	---	15-40
Idaho fescue	FEID	30-50	---	---	---	---	---
Bluegrass	POA++	2-10	---	---	---	---	5-10
Bottlebrush squirreltail	SIHY	2-5	---	---	---	---	2-5
Thurber needlegrass	STTH2	---	15-25	5-15	---	---	15-40
Nevada bluegrass	PONE3	---	2-10	---	40-60	5-15	---
Basin wildrye	ELCI2	---	---	2-5	5-15	50-60	---
Indian ricegrass	ORHY	---	---	2-5	---	---	---
Alpine timothy	PHAL2	---	---	---	20-40	---	---
Sedge	CAREX	---	---	---	5-15	1-5	---
Mat muhly	MURI	---	---	---	5-15	2-10	---
Meadow barley	HOBR2	---	---	---	2-5	---	---
Webber ricegrass	ORWE	---	---	---	---	---	5-15
Other perennial grasses	PPGG	5-15	10-15	2-10	2-8	15-20	1-10
Balsamroot	BALSA	2-5	---	---	---	---	2-5
Tapertip hawksbeard	CRAC2	---	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---
Cinquefoil	POTEN	---	---	---	2-5	---	---
Other perennial forbs	PPFF	5-20	2-5	2-10	2-10	5-10	5-10
Low sagebrush	ARAR8	10-25	---	---	---	---	15-25
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	---	---	---
Big sagebrush	ARTR2	---	10-15	2-10	---	---	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15	---
Other shrubs	SSSS	5-15	5-10	2-8	2-5	2-5	5-15

Range site number		O25X017N	O25X014N	O25X015N	O25X006N	O25X003N	O25X018N
Potential production (lb/acre):							
	Favorable years	1,000	1,000	1,000	1,600	2,500	800
	Normal years	700	800	700	1,300	1,900	600
	Unfavorable years	400	600	500	800	1,200	400

2090.--Manard-Igdell-Eboda association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Manard	Igdell	Eboda	1	2
Bluebunch wheatgrass	AGSP	15-30	15-30	15-40	15-30	15-30
Idaho fescue	FEID	30-50	30-50	20-40	30-50	30-50
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	2-5	---	2-5	2-5
Basin wildrye	ELCI2	---	---	2-5	---	---
Other perennial grasses	PPGG	5-15	5-15	2-10	5-15	5-15
Balsamroot	BALSA	2-5	2-5	---	2-5	2-5
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	2-5	---	---
Other perennial forbs	PPFF	5-20	5-20	2-10	5-20	5-20
Low sagebrush	ARAR8	10-25	10-25	---	10-25	10-25
Antelope bitterbrush	PUTR2	1-10	1-10	1-5	1-10	1-10
Big sagebrush	ARTR2	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	---	5-15	5-15
Range site number		O25X017N	O25X017N	O25X027N	O25X017N	O25X017N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,300	1,000	1,000
Normal years		700	700	900	700	700
Unfavorable years		400	400	600	400	400

3000.--Vitale-Ebic-Chen association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Vitale	Ebic	Chen	1	2	3
Idaho fescue	FEID	20-40	30-50	30-50	---	30-50	30-50
Bluebunch wheatgrass	AGSP	15-40	15-30	15-30	---	5-10	15-30
Bluegrass	POA++	2-10	2-10	2-10	---	---	2-10
Basin wildrye	ELCI2	2-5	---	---	---	---	---
Bottlebrush squirreltail	SIHY	---	2-5	2-5	---	---	2-5
Mountain brome	BRMA4	---	---	---	---	1-10	---
Columbia needlegrass	STCO3	---	---	---	---	1-10	---
Other perennial grasses	PPGG	2-10	5-15	5-15	---	5-15	5-15
Arrowleaf balsamroot	BASA3	2-5	---	---	---	5-10	---
Tapertip hawksbeard	CRAC2	2-5	---	---	---	5-10	---
Balsamroot	BALSA	---	2-5	2-5	---	---	2-5
Other perennial forbs	PPFF	2-10	5-20	5-20	---	5-10	5-20
Big sagebrush	ARTR2	5-15	---	---	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	1-10	1-10	---	5-10	1-10
Low sagebrush	ARAR8	---	10-25	10-25	---	---	10-25
Mountain big sagebrush	ARTRV	---	---	---	---	10-20	---
Snowberry	SYMPH	---	---	---	---	2-5	---
Other shrubs	SSSS	---	5-15	5-15	---	2-5	5-15
Range site number		O25X027N	O25X017N	O25X017N	None	O25X056N	O25X017N
Potential production (lb/acre):							
Favorable years		1,300	1,000	1,000	---	1,800	1,000
Normal years		900	700	700	---	1,200	700
Unfavorable years		600	400	400	---	800	400

3010.--Ebic-Manard-Chen association

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Ebic	Manard	Chen	1	2
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	15-30	15-30
Idaho fescue	FEID	30-50	30-50	30-50	30-50	30-50
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	2-5	2-5
Other perennial grasses	PPGG	5-15	5-15	5-15	5-15	5-15
Balsamroot	BALSA	2-5	2-5	2-5	2-5	2-5
Other perennial forbs	PPFF	5-20	5-20	5-20	5-20	5-20
Low sagebrush	ARAR8	10-25	10-25	10-25	10-25	10-25
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-10	1-10
Other shrubs	SSSS	5-15	5-15	5-15	5-15	5-15
Range site number		O25X017N	O25X017N	O25X017N	O25X017N	O25X017N
Potential production (lb/acre):						
Favorable years		1,000	1,000	1,000	1,000	1,000
Normal years		700	700	700	700	700
Unfavorable years		400	400	400	400	400

3020.--Cleavmor-Blackleg association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions			
		Soil name		Inclusion number--	
		Cleavmor	Blackleg	1	2
Bluebunch wheatgrass	AGSP	10-20	15-40	10-20	15-30
Thurber needlegrass	STTH2	5-15	---	5-15	---
Indian ricegrass	ORHY	2-10	---	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10
Idaho fescue	FEID	---	20-40	---	30-50
Basin wildrye	ELCI2	---	2-5	---	---
Bottlebrush squirreltail	SIHY	---	---	---	2-5
Other perennial grasses	PPGG	5-20	2-10	5-20	5-15
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---
Balsamroot	BALSA	---	---	---	2-5
Other perennial forbs	PPFF	5-15	2-10	5-15	5-20
Black sagebrush	ARARN	15-30	---	15-30	---
Big sagebrush	ARTR2	---	5-15	---	---
Rabbitbrush	CHRYS9	---	2-5	---	---
Antelope bitterbrush	PUTR2	---	1-5	---	1-10
Low sagebrush	ARAR8	---	---	---	10-25
Other shrubs	SSSS	5-15	---	5-15	5-15
Range site number		O24X031N	O25X027N	O24X031N	O25X017N
Potential production (lb/acre):					
Favorable years		700	1,300	700	1,000
Normal years		500	900	500	700
Unfavorable years		300	600	300	400

3030.--Cleavmor-Ebic-Blackleg association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Cleavmor	Ebic	Blackleg	1	2
Bluebunch wheatgrass	AGSP	10-20	15-30	15-40	10-20	---
Thurber needlegrass	STTH2	5-15	---	---	5-15	---
Indian ricegrass	ORHY	2-10	---	---	2-10	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Idaho fescue	FEID	---	30-50	20-40	---	---
Bottlebrush squirreltail	SIHY	---	2-5	---	---	---
Basin wildrye	ELCI2	---	---	2-5	---	---
Other perennial grasses	PPGG	5-20	5-15	2-10	5-20	---
Tapertip hawksbeard	CRAC2	2-5	---	2-5	2-5	---
Balsamroot	BALSA	---	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	---	2-5	---	---
Other perennial forbs	PPFF	5-15	5-20	2-10	5-15	---
Black sagebrush	ARARN	15-30	---	---	15-30	---
Low sagebrush	ARAR8	---	10-25	---	---	---
Antelope bitterbrush	PUTR2	---	1-10	1-5	---	---
Big sagebrush	ARTR2	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	---	5-15	---
Range site number		O24X031N	O25X017N	O25X027N	O24X031N	None
Potential production (lb/acre):						
Favorable years		700	1,000	1,300	700	---
Normal years		500	700	900	500	---
Unfavorable years		300	400	600	300	---

3040.--Peevywell-Cleavage-Leevan association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Peevywell	Cleavage	Leevan	1	2	3
Bluebunch wheatgrass	AGSP	15-30	15-30	15-30	15-40	15-30	---
Idaho fescue	FEID	30-50	30-50	30-50	20-40	30-50	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	2-10	---
Bottlebrush squirreltail	SIHY	2-5	2-5	2-5	---	2-5	---
Basin wildrye	ELCI2	---	---	---	2-5	---	---
Other perennial grasses	PPGG	5-15	5-15	5-15	2-10	5-15	---
Balsamroot	BALSA	2-5	2-5	2-5	---	2-5	---
Arrowleaf balsamroot	BASA3	---	---	---	2-5	---	---
Tapertip hawksbeard	CRAC2	---	---	---	2-5	---	---
Other perennial forbs	PPFF	5-20	5-20	5-20	2-10	5-20	---
Low sagebrush	ARAR8	10-25	10-25	10-25	---	10-25	---
Antelope bitterbrush	PUTR2	1-10	1-10	1-10	1-5	1-10	---
Big sagebrush	ARTR2	---	---	---	5-15	---	---
Rabbitbrush	CHRYS9	---	---	---	2-5	---	---
Other shrubs	SSSS	5-15	5-15	5-15	---	5-15	---
Range site number		O25X017N	O25X017N	O25X017N	O25X027N	O25X017N	None
Potential production (lb/acre):							
Favorable years		1,000	1,000	1,000	1,300	1,000	---
Normal years		700	700	700	900	700	---
Unfavorable years		400	400	400	600	400	---

3050.--Blackleg-Peevywell-Cleavage association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions				
		Soil name			Inclusion number--	
		Blackleg	Peevywell	Cleavage	1	2
Idaho fescue	FEID	20-40	30-50	30-50	30-50	---
Bluebunch wheatgrass	AGSP	15-40	15-30	15-30	15-30	---
Bluegrass	POA++	2-10	2-10	2-10	2-10	---
Basin wildrye	ELCI2	2-5	---	---	---	50-60
Bottlebrush squirreltail	SIHY	---	2-5	2-5	2-5	---
Nevada bluegrass	PONE3	---	---	---	---	5-15
Mat muhly	MURI	---	---	---	---	2-10
Sedge	CAREX	---	---	---	---	1-5
Other perennial grasses	PPGG	2-10	5-15	5-15	5-15	15-20
Arrowleaf balsamroot	BASA3	2-5	---	---	---	---
Tapertip hawksbeard	CRAC2	2-5	---	---	---	---
Balsamroot	BALSA	---	2-5	2-5	2-5	---
Other perennial forbs	PPFF	2-10	5-20	5-20	5-20	5-10
Big sagebrush	ARTR2	5-15	---	---	---	---
Rabbitbrush	CHRYS9	2-5	---	---	---	---
Antelope bitterbrush	PUTR2	1-5	1-10	1-10	1-10	---
Low sagebrush	ARAR8	---	10-25	10-25	10-25	---
Basin big sagebrush	ARTRT*	---	---	---	---	10-15
Other shrubs	SSSS	---	5-15	5-15	5-15	2-5
Range site number		O25X027N	O25X017N	O25X017N	O25X017N	O25X003N
Potential production (lb/acre):						
Favorable years		1,300	1,000	1,000	1,000	2,500
Normal years		900	700	700	700	1,900
Unfavorable years		600	400	400	400	1,200

3080.--Siri Variant-Sumine-Vitale Variant association

(Absence of an entry indicates that the named plant is not a key species in the potential native plant community)

Common plant name	Plant symbol	Percentage composition and production (dry weight) of plants on major soils and inclusions					
		Soil name			Inclusion number--		
		Siri Variant	Sumine	Vitale Variant	1	2	3
Bluebunch wheatgrass	AGSP	10-20	30-50	20-30	---	---	---
Thurber needlegrass	STTH2	5-15	2-10	5-10	---	---	---
Indian ricegrass	ORHY	2-10	---	---	10-30	---	---
Bluegrass	POA++	2-10	---	2-5	---	---	---
Basin wildrye	ELCI2	---	5-10	---	---	---	---
Idaho fescue	FEID	---	2-5	---	---	---	---
Nevada bluegrass	PONE3	---	2-5	---	---	---	---
Bottlebrush squirreltail	SIHY	---	---	---	5-10	---	---
Other perennial grasses	PPGG	5-20	5-10	2-5	10-20	---	---
Tapertip hawksbeard	CRAC2	2-5	2-5	2-5	---	---	---
Arrowleaf balsamroot	BASA3	---	2-5	---	---	---	---
Other perennial forbs	PPFF	5-15	2-5	2-10	5-15	---	---
Black sagebrush	ARARN	15-30	---	35-45	5-15	---	---
Antelope bitterbrush	PUTR2	---	2-15	---	1-5	---	---
Mountain big sagebrush	ARTRV	---	5-10	---	---	---	---
Downy rabbitbrush	CHVIP	---	---	---	1-5	---	---
Spiny hopsage	GRSP	---	---	---	1-5	---	---
Purple sage	SACA9	---	---	---	1-5	---	---
Wyoming big sagebrush	ARTRW*	---	---	---	10-25	---	---
Other shrubs	SSSS	5-15	2-10	10-20	2-4	---	---
Range site number		O24X031N	O25X009N	O25X055N	O25X025N	None	None
Potential production (lb/acre):							
Favorable years		700	1,300	450	200	---	---
Normal years		500	900	375	150	---	---
Unfavorable years		300	700	300	100	---	---

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